



## SEQUENCE LISTING

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#7  
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TECH CENTER 1600/2900

<120> LOCI FOR IDIOPATHIC GENERALIZED EPILEPSY, MUTATIONS  
THEREOF AND METHOD USING SAME TO ASSESS, DIAGNOSE,  
PROGNOSE OR OR TREAT EPILEPSY

<130> GOUD:023

<150> 09/167,623

<151> 2000-11-24

<140> PCT/CA00/01404

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<140? 60/167,623

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Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr	1860	1865	1870
Lys Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln	1875	1880	1885
Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln			

1890	1895	1900
Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val		
1905	1910	1915 1920
Ile Ile Gln Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys		
	1925	1930 1935
Gln Ala Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn		
	1940	1945 1950
Leu Leu Ile Lys Glu Asp Met Ile Ile Asp Arg Ile Asn Glu Asn Ser		
	1955	1960 1965
Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro Pro		
	1970	1975 1980
Ser Tyr Asp Arg Val Thr Lys Pro Ile Val Glu Lys His Glu Gln Glu		
	1985	1990 1995 2000
Gly Lys Asp Glu Lys Ala Lys Gly Lys		
	2005	

<210> 4  
 <211> 1246  
 <212> DNA  
 <213> Homo sapiens

<400> 4

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tsaytnrkak	vhssmmcttn	cvmtmsndwt	knvyttgyts	kargcdtrdw	nwdtvtavtv	120
ngnsartrvr	aktsvgktvg	asvksdsvmt	vcsvagmgnr	nkewtnashs	kntvnyngtn	180
tvdwksydsr	yhygdacgns	sdagcgymcv	kagrnnnygt	sdtswasrmt	dwntyaagk	240
tymvvgssna	vvamaynata	kamkkaaaat	atashrsaa	grsdssssask	ssksakrrnr	300
rkkrrksggk	ddkssdsrrk	grsgnrtykr	ysshssrgss	rrnsrtssrg	rakdvgsnda	360
ddhstdnsrr	dsvrrhgrn	snstsrssrm	avangknhst	vdcnvgvsvg	gsvtsvgvdk	420
atddngtttt	mrkrrssshv	smddsrrams	astntvsrkc	cwyksnwdcs	ywkvhvvnv	480
vmdvdatcvn	tmamhymtdh	nnvtvgnvtg	tamkamdyyy	gwndgvtsvg	anvgsvrsrr	540
vkakswtnmk	gnsvgagntv	avavvgmgks	ykdcvckasd	crwhmndhsv	rvcgwtmwdc	600
mvagamctvm	mvvmgvnvna	sssadnaatd	ddnmnnavdr	mhkgvayvkr	kysrkkdkdd	660
nnkkdscmsn	htagkddykd	vngttsggtg	ssvkydsdym	snnstvtvav	gsdnntdsss	720
dskknsssss	gstvdgavvv	tactgcvrkc	cnvgrgkwn	rrtcrvhnwt	vmssgaadyd	780
rktktmyadk	vtymkwvayg	ytytnawcw	vdvsvstana	gysgaksrtr	arrasrgmr	840
vvnagasmnv	vcwsmgvnag	kyhcntttgd	rddvnnhtdc	krntarwknv	kvndnvggys	900
vatkgwmdmy	aavdsrnvky	symyyvgstn	gvdnknkkkg	dmtkkyynam	kkgskkkrn	960
kgmvdvtrvd	smcnmvtmmv	tddsylvtsr	nvvtgcvksr	hytgvndvv	vsvgmakyvs	1020
trvrargrrk	gakgrtamms	angvmyagms	nayvkrvgdd	mntgnsmtct	sagwdgansk	1080
dcdnkvnsgs	vkgdcgnsvg	vsysvvvnmy	avnsvatsas	ddmyvwkdda	tmksaaannk	1140
amdmsvgdrh	cdatkrvgsg	mdarmrmasn	skvsytttkr	kvsavrayrr	hkrtvkasty	1200
nknkkgggank	dmdrnnstkt	dtmstaacsy	drvtkvkhgk	dkakgk		1246

<210> 5  
 <211> 850  
 <212> DNA  
 <213> Homo sapiens

<400> 5

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gcaaggagaa gcaatactgg gagattacag agaagaaagg aaaaaaggct gagagaaaag 180
aggttgagga agaaatcata aatctggatt gtgagaaagt gtttaatat tagccactag 240
atggcgatgt aatgtaagggt gctgtcttga cttttttttt ttttttttga aacaagctat 300
ttgctgattt gtattaggta ccatagagtg aggcgaggat gaagccgaga agatactgca 360
gaggtctctg gtgcatgtgt gtatgtgtgc gtttgtgtgt gtttgtgtgt ctgtgtgttc 420
tgccccagtg agactgcagc ccttgtaaat actttgacac cttttgcaag aaggaatctg 480
aacaattgca actgaaggca cattgttatt atctcgtctt tgggtgatgc tgttcctcac 540
tgcagatgga taattttcct tttaatcagg taagccatct aattgtttca tcttgatttt 600
aagtttattc attccagtta ttccttttga aaaagagtcc atggaaattc agtttgggca 660
gagcaggaag tccatttttg tatgtgtatt cagaccaact gtccccctcc tccctctcct 720
cctcttcttg tccccctccc cgcgcctccc tctctcaacc ttccatgaac tgaaatcagg 780
tttgttttgc agttcagcat tttgatagaa gatgggattc tttggcctga aatagcttgg 840
catctggcca                                     850
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<210> 6

<211> 483

<212> DNA

<213> Homo sapiens

<400> 6

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gaataaatgg taattaaaaat gtgcaggatg acaagatgga gcaaacagtg cttgtaccac 120
caggacctga cagcttcaac ttcttcacca gagaatctct tgcggctatt gaaagacgca 180
ttgcagaaga aaaggcaaag aatcccaaac cagacaaaaa aagatgacga cgaaaaatgg 240
cccaaagcaa atagtgactt ggaagctgga aagaaccttc catttattta tggagacatt 300
cctccagaga tgggtgtcaga gcccctggag gacctggacc cctactatat caataagaaa 360
gtgagtgttt tttttatcag gcatattttt gctgctaatt gcctactgca ttccttggac 420
tgttgtagca ccaacacatg ccaatagcac aaatctagta tctctgttag aatgaacaca 480
ttt                                     483
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<210> 7

<211> 497

<212> DNA

<213> Homo sapiens

<400> 7

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tggtttctca tttaacttta caataattta ttatgacaag taacagaaag tagataacag 120
agtttaagtg gtttatactt tcatacttct atgttgtgtt cctgtcttac agacttttat 180
agtattgaat aaagggaagg ccatcttccg gttcagtgcc acctctgccc tgtacatttt 240
aactcccttc aatcctctta ggaaaatagc tattaagatt ttggtacatt catatccttt 300
ttcaagtgat taatatatta tttttgtaca tgatctgtaa gcactttata gctaaaatct 360
aaattaagtt gggaaatgtc catattatat aggtttcatc actctcattt tgcatctttg 420
tcatattagc ctcatcttta aagttcatta atcacataga cattactgaa acatgtactc 480
tttaacattt tatatat                                     497
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<210> 8

<211> 501

<212> DNA

<213> Homo sapiens

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<400> 8
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cattttacac atgaagaaat tgaaatgtaa ggagattaga agacttgccc acaatgcatt 120
tatccctgaa ttttggctaa gctgcagttt gggcttttca atggttagctt ttgtaatat 180
aacacttgga ttttgatttt cttttgtgtg ttccttaaca ataacctaca ttattcagca 240
tgctaattat gtgcactatt ttgacaaact gtgtgtttat gacaatgagt aaccctcctg 300
attggacaaa gaatgtagag taagttcaac ttatatTTTT aataacatat atacattygg 360
gattytgaaa ctgtgtctta atgtagtctt aaaataaaac tgaagagcat tttattaaag 420
tcattcctag acaaaattac gcagcaagag gacaatgctc attggccctc aggcctgctg 480
gcgttatact gattatcact c
501

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<210> 9
<211> 563
<212> DNA
<213> Homo sapiens

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<400> 9
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aactctttgt gttaggaagc tgaatttaaa tttagggtta cgtttcattt gtatgaaatt 120
aaaatccatc tgcttagttt tcttttttag tatttatcta ttccactgat ggagtataa 180
gaaattggta tgctatgaaa aaacactgtt actttatcaa attttttga tgcttgtttt 240
cagatacacc ttcacaggaa tatatacttt tgaatcactt ataaaaatta ttgcaagggg 300
attctgttta gaagatttta ctttccttcg ggatccatgg aactggctcg atttcactgt 360
cattacattt gcgtaagtgc ctttbytgaa actttaagag agaacatagt ttggttttcc 420
atcagtgtct atgcttttaa gaataggttt gctttacctg tagaatattt ttgtgtgatt 480
tatacattca aactctggat ttcaatttag cacaacaaag gtctaagtgg aatttcacta 540
tagcatgaag gctttgcagt agt
563

```

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<210> 10
<211> 253
<212> DNA
<213> Homo sapiens

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<400> 10
cttataagcc catgcagtaa tataaatcct gctaaaatct tgaataattc tgatttaatt 60
ctacagggtt gtaacagaat ttgtaaacct aggcaatttt tcagctcttc gcactttcag 120
agtcttgaga gctttgaaaa ctatttcggt aattccaggt aagaagtgat tagagtaaag 180
gataggctct ttgtacctac agctttttct ttgtgtcctg tttttgtgtt tgtgtgtgaa 240
ctcccgtta cag
253

```

```

<210> 11
<211> 340
<212> DNA
<213> Homo sapiens

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<400> 11
gtaagaagtg attagagtaa aggataggct ctttgtacct acagcttttt ctttgtgtcc 60
tgtttttgtg tttgtgtgtg aactcccgct tacaggtagc tcacagagtt tgtggacctg 120
ggcaatgtct cggcattgag aacattcaga gttctccgag cattgaagac gatttcagtc 180
attccaggtg agagcaaggt tagataatga gacggacca tcatgtgatt cagcatcctt 240
ctctgcttga cattcagttt tacagaaaat caggaatcat aagactaggt gttcaaagaa 300
atgattatta tgttagacat agcttatcag cctggagtta
340

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<210> 12  
<211> 409  
<212> DNA  
<213> Homo sapiens

<400> 12  
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gagccctgat ccagtctgtg aagaagctct cagatgtaat gatcctgact gtgttctgtc 120  
tgagcgtatt tgctctaatt gggctgcagc tggtcatggg caacctgagg aataaatgta 180  
tacaatggcc tcccaccaat gcttccttgg aggaacatag tatagaaaag aatataactg 240  
tgaattataa tgggtacactt ataaatgaaa ctgtctttga gtttgactgg aagtcatata 300  
ttcaagattc aagtaagaat tattgttatg tacatttcct taaaaagtag aattggattg 360  
tttgtaacac aaaggataaa tacttgaggg gctggatatc ccattttac 409

<210> 13  
<211> 266  
<212> DNA  
<213> Homo sapiens

<400> 13  
cgcgcaaata cttgtgcctt tgaatgaata atatatttaa aattactcaa taaacttaaa 60  
agtagaacct gaccttcctg ttctctttga gtgtttttta caatgcaaat gttcagcata 120  
cgactttctt ttttcaaaca ggatatcatt atttcctgga gggtttttta gatgcactac 180  
tatgtggaaa tagctctgat gcagggtaag tcaatattgt gtgcatctgt gtatattgta 240  
tgtacacaat acatatgtgt atcttt 266

<210> 14  
<211> 604  
<212> DNA  
<213> Homo sapiens

<400> 14  
agggtgtgaa aatgcaaatt atcaacaaaa attattttgt aaaatattat tagaaatgct 60  
gcaccatatt ttaatgatga caccaagtag ctaataagac tatatgcagt caaaagtgg 120  
gaaatagatt agttacttat ttgtcaaact tttattttga aataccaaat ctttctgact 180  
aggcaatatc atagcatagt atcagagtaa aaaggcagca gaacgacttg taatactttc 240  
ttttacccca cttgcagcca atgtccagag ggatatatgt gtgtgacagc tggtagaaat 300  
cccaattatg gctacacaag ctttgatacc ttcagttggg cttttttgtc cttgtttcga 360  
ctaagtactc aggacttctg ggaaaatctt tatcaactgg tgagaactaa agagccacac 420  
tctccattta agtaaaaagta tacaagaaaa ccaattgagt tatgaaatta aaaccggatg 480  
ataatatagt agaaagagca gaacttgaca cgagacttga gttcctctat cctattgatt 540  
ataacacata ctgagcagag tgatgccaaag gattgcaatt ctctccatt tcttcttggc 600  
tcaa 604

<210> 15  
<211> 378  
<212> DNA  
<213> Homo sapiens

<400> 15  
ttatatctga gttttgctag ccacatgagt aaattgaaag ttgagcacc ttagtgaata 60  
atattgggaa ataattctga tatttttgtt tgcagacatt acgtgctgct gggaaaacgt 120  
acatgatatt ttttgtattg gtcattttct tgggctcatt ctacctaata aatttgatcc 180



tggctgtggt	ggccatggcc	tacgaggaac	agaatcaggc	caccttggaa	gaagcagaac	240
agaaagaggc	cgaatttcag	cagatgattg	aacagcttaa	aaagcaacag	gaggcagctc	300
aggtaagctg	ccctgctcat	ggcactgacc	tttatcgtct	gatgtactat	atgagagaa	360
tagtctagag	cgtgtgat					378

<210> 16  
 <211> 845  
 <212> DNA  
 <213> Homo sapiens

<400> 16

caacccta	taaatacca	tttttaaagt	aaatcaa	ccaaaaag	atgaatttat	60
tttcttgt	atacatgt	gatattttt	aatacgtg	ctgtggag	ttaacagaga	120
cataataa	gttaccat	agcaaa	attatctc	aaagcctt	ttaggtaga	180
agaaaaaa	aatctcct	tatacttg	gagaatct	tctgtgag	gatcttcag	240
cagttca	tatttttt	aagccatg	aatacttc	ccctttca	gaaagata	300
gtctcttc	gtgctatg	aaaatcat	ctcttc	tagcaggc	caacggca	360
tgcctcag	cattccag	agcccagt	agcaggc	ctctcaga	gctcatct	420
agcctcta	ttgagttc	agagtgtc	ggaaaga	aatcggag	agaaaaga	480
acagaaag	cagtctgg	gggaagag	agatgagg	gaattcca	aatctga	540
tgaggacag	atcaggagg	aagggttt	cttctcc	gaaggga	ggttgaca	600
tgaaaagag	tactcctcc	cacaccagg	atggcact	tgagttt	gatgcatg	660
tgaaaatt	aacatggg	agaggggg	atthagaa	tggaactc	aatttttt	720
aactgaat	accactgt	tgttatat	aaacccat	cttcttc	tagttatg	780
aaaacttt	tccacagat	tgtaagtct	cagctcgg	tagttaag	aacaccaag	840
tgaca						845

<210> 17  
 <211> 965  
 <212> DNA  
 <213> Homo sapiens

<400> 17

cattgccat	ttctaagg	gtttccctt	gaacttgag	aatggctcg	caggggtgt	60
gtgtatgt	gtgtgtgt	gtttcaat	gttaagggt	caatctat	cctcattct	120
taatccaa	ggctagaa	tttctttt	caaggta	taattta	tgaatgc	180
taaaatgag	atgataat	aaaggaat	accatatt	gttatga	ctgaaat	240
cttctaca	atcttgca	atgaaatc	attcaaat	ccatatta	atgactct	300
ttgtbtgc	tttcaa	acttctag	ttgagcat	gtggctcc	attttcac	360
aggcgaaa	gcagaaca	agcctttc	tttagagg	gagcaaag	tgtgggat	420
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tccttgtt	tgccccg	acacggag	agacgca	gcaacctg	tcagacc	540
aggtcatcc	ggatgctg	agtgtttc	gcgaatgg	agatgcac	cactgtgg	600
tgcaatgg	tggtttcc	ggttggtg	ccttcagt	ctacatcg	tggtggac	660
cttctgcc	aggtgata	agataagc	gctactga	acaatgta	gaagtytt	720
atagttcag	catggctg	tcactatt	tgccacag	agtgtgtc	cagaacgg	780
accttgaga	tgattcct	gtggtcac	tgtagaat	cctgcatc	gtaatat	840
tgatagact	accaacta	acttaaac	ttagcagt	cctgcaca	cctgaatg	900
tttacttat	aaaagtgc	aggattga	agacaca	attactgc	ccagttgg	960
gattt						965

<210> 18  
 <211> 641  
 <212> DNA

<213> Homo sapiens

<400> 18

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gttaacatct tgggttttgc tgtatgacta aatgggttaac agtttgaaca ttccaggcta 120
atgatacaat aagtcagaaa tatctgccat caccaattga atatgaaagt gcatgatgca 180
tgtgtttcat gaaattcact gtgtcaccat ttggttgttt gcttgtcata ttgctcaaat 240
taattgttta atgcattagc attttttttt acaggggaaca accactgaaa ctgaaatgag 300
aaagagaagg tcaagttctt tccacgtttc catggacttt ctagaagatc cttcccaaag 360
gcaacgagca atgagtatag ccagcattct aacaaatata gtagaagggt ggtaacaaat 420
tctattttcg tttcaattat tttcaccaaa cttatatgtt ctcatttcaa acaaatatat 480
ttgtgagttg ggaatagtgc attctaataa aaagacagtc taattcaaga gctgttattt 540
cttataatcta ctcatatatt ctagaagcct taacaattta ttttaaaatg agtgatattg 600
ggactaagac tgttttccta actgtgtagc aactccttga a 641
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<210> 19

<211> 818

<212> DNA

<213> Homo sapiens

<400> 19

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cagtgcataa gacaaaaaac taccatttgt tacctgggcc ctatgtgtgt gtctgatgaa 120
ataaccttgg gaggttttaga gtaaactgta atttttttta caagtacaaa aaaggggtgc 180
tctgtaacaa aaatgtgttg attactgaaa ataagtttag tggatatgaa ataaatgtgt 240
gtgtataaag tawacctttt ggtgggtctt tttttttttt ttcttaatct agaacttgaa 300
gaatccaggc agaaatgccc accctgttgg tataaatttt ccaacatatt cttaatctgg 360
gactgttctc catattgggt aaaagtgaac catgttgtca acctggttgt gatggacca 420
tttgttgacc tggccatcac catctgtatt gtcttaataa ctcttttcat ggccatggag 480
cactatccaa tgacggacca tttcaataat gtgcttacag taggaaactt ggtaagcata 540
ttggaaggta aatgtgttta gtcttcaaat tttctgcttg aaaaactgtt tacatttaat 600
tgtgtatagc agtctttcaa ccattccttca tgcttctctg cccctgcaaa atcgcaatta 660
tatttagctg gctatactct acttttttgc caaaaataat cacccttaat gtgtcacaaa 720
aaactgagaa aggcataggc ctacagcact acttgaaaag tcaacagcaa tatttataat 780
ttttcaggat ccagaagtag ctcatagatt aagaacat 818
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<210> 20

<211> 645

<212> DNA

<213> Homo sapiens

<400> 20

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ttatctactt cgcgtttcca caaggataaa attaaataat gtatatgawa gtctttcatc 120
aactacaaat tgccatacaa atttaagtta gtaatagaat cattgtggga aaatagcata 180
agcattatgt tctaagagca aatcttatgt catgtatgtt attatctggg ggaattagat 240
taatttttgt ttgatcttag gttttcactg ggatctttac agcagaaatg tttctgaaaa 300
ttattgcat ggatccttac tattatttcc aagaaggctg gaatatcttt gacggtttta 360
ttgtgacgct tagcctggta gaacttggac tcgccaatgt ggaagggtta tctgttctcc 420
gttcatttct attggtaaaa aaaaaaaaaa aaggaaacca attcaaaaac ctttctaaca 480
ttcagggttc ttgcatagca ttgtcatagt ttttttgcca cacaaccatt aggcattgta 540
agtttttctg taacatttgc attgtcaaaa acttttccta catgggaata attctcaatt 600
attaggttac cttagttcaa gggcwaggtc ggaaaggtaa cggtt 645
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<210> 21  
<211> 829  
<212> DNA  
<213> Homo sapiens

<400> 21  
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aaatatatat taatcttttca ttttccagct gcgagattttc aagttggcaa aatcttggcc 120  
aacgtttaaatt atgctaataa agatcatcgg caattccgtg ggggctctgg gaaatttaac 180  
cctcgtctttg gccatcatcg tcttcattttt tgccgtgggtc ggcatgcagc tctttggtaa 240  
aagctacaaa gatttgtgtct gcaagatcgc cagtgtattgt caactccac gctggcacat 300  
gaatgacttc ttccactcck hcctgattgt gttccgcgtg ctgtgtgggg agtggataga 360  
gaccatgtgg gactgtatgg aggttgctgg tcaagccatg tgccttactg tcttcatgat 420  
ggtcatgggtg attggaaacc tagcgggtatg taccactta agatatgcat tttggaaata 480  
caccagcatg gcacatgtat acatatgtaa ctaacctgca cattgtgcac atgtacccta 540  
aaactttaaag tataataaaa aaaaagagta taatttaatg gtgactgttt tgtcaaaaag 600  
aaaaacaaac tatgattatt gggtttaaag tccattacct tggatatatt atcactttta 660  
caacacagca atatabcagt gcccctgcat tttttatacc aaattctatt ttgtcagtca 720  
ctttatcaca ttttttatgt gaattacaat agagtatcat attgagatga gcctaaaagg 780  
atgtgctggg accattttat aaattcagag ccaaggaaga gagaagtct 829

<210> 22  
<211> 909  
<212> DNA  
<213> Homo sapiens

<400> 22  
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acaaaacctt agattagctc attcaatttc actttacgaa tgggagaact tgagagcaac 120  
agaaatcatg tctttgtcca aggatgtgct attgagccag tcacaaattc agatcaccca 180  
tcttctaatt actatgctgt ggtgtttcct tctcatcaag ttttagaact tagagttttt 240  
tccacactta aaagaaagaa taagtgattg taatctgctc ttccctacat tgggtgtaaaa 300  
ttataatcat gtttttgggtg tttttaaggt cctgaatctc tttctggcct tgcttctgag 360  
ctcatttagt gcagacaacc ttgcagccac tgatgatgat aatgaaatga ataactcca 420  
aattgctgtg gataggatgc acaaaggagt agcttatgtg aaaagaaaaa tatatgartt 480  
tattcaacag tccttcatta ggaaacaaaa gatttttagat gaaatttaac cacttgatga 540  
tctaaacaac aagaaagaca gttgtatgtc caatcataca gcagaaattg ggaaagatct 600  
tgactatctt aaagatgtaa atggaactac aagtgggtata ggaactggca gcagtgttga 660  
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gactgtacca attgctgtag gagaatctga ctttgaaaat ttaaacacgg aagacttttag 780  
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<213> Homo sapiens

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<212> DNA
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<210> 26
<211> 336
<212> DNA
<213> Homo sapiens

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<212> DNA  
<213> Homo sapiens

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<212> DNA  
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<210> 31
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<212> DNA
<213> Homo sapiens

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<213> Homo sapiens

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Gly	Pro	Lys	Pro	Asn	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Ser	Leu	Pro	Phe
	50					55					60				
Ile	Tyr	Gly	Asp	Ile	Pro	Pro	Glu	Met	Val	Ser	Val	Pro	Leu	Glu	Asp
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Leu	Asp	Pro	Tyr	Tyr	Ile	Asn	Lys	Lys	Thr	Phe	Ile	Val	Leu	Asn	Lys
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Gly	Lys	Ala	Ile	Ser	Arg	Phe	Ser	Ala	Thr	Pro	Ala	Leu	Tyr	Ile	Leu
			100					105					110		
Thr	Pro	Phe	Asn	Pro	Ile	Arg	Lys	Leu	Ala	Ile	Lys	Ile	Leu	Val	His
		115					120					125			
Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Val
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Phe	Met	Thr	Met	Ser	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr
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Thr	Phe	Thr	Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Ile	Lys	Ile	Leu	Ala
			165						170					175	
Arg	Gly	Phe	Cys	Leu	Glu	Asp	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn
			180					185					190		
Trp	Leu	Asp	Phe	Thr	Val	Ile	Thr	Phe	Ala	Tyr	Val	Thr	Glu	Phe	Val
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Asp	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala
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Leu	Lys	Thr	Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala
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Phe	Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly
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Asn	Leu	Arg	Asn	Lys	Cys	Leu	Gln	Trp	Pro	Pro	Asp	Asn	Ser	Ser	Phe
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Glu	Asp	Lys	Ser	His	Phe	Tyr	Phe	Leu	Glu	Gly	Gln	Asn	Asp	Ala	Leu
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Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile  
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Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp  
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Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp  
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Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr  
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Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu  
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Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn  
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Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln  
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Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala  
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Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile  
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Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser  
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Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu  
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Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser  
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Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp  
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Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg  
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Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn  
 610 615 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met  
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Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu	
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Val	Gly	Gly	Pro	Ser	Thr	Leu	Thr	Ser	Ala	Gly	Gln	Leu	Leu	Pro	Glu	
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His	Val	Ser	Met	Asp	Leu	Leu	Glu	Asp	Pro	Thr	Ser	Arg	Gln	Arg	Ala	
	690					695					700					
Met	Ser	Ile	Ala	Ser	Ile	Leu	Thr	Asn	Thr	Met	Glu	Glu	Leu	Glu	Glu	
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Ser	Arg	Gln	Lys	Cys	Pro	Pro	Cys	Trp	Tyr	Lys	Phe	Ala	Asn	Met	Cys	
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Leu	Ile	Trp	Asp	Cys	Cys	Lys	Pro	Trp	Leu	Lys	Val	Lys	His	Leu	Val	
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Asn	Leu	Val	Val	Met	Asp	Pro	Phe	Val	Asp	Leu	Ala	Ile	Thr	Ile	Cys	
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Tyr	Tyr	Phe	Gln	Glu	Gly	Trp	Asn	Ile	Phe	Asp	Gly	Phe	Ile	Val	Ser	
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Leu	Ser	Leu	Met	Glu	Leu	Gly	Leu	Ala	Asn	Val	Glu	Gly	Leu	Ser	Val	
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 Glu Gly Glu Gln Pro Glu Val Glu Pro Glu Glu Ser Leu Glu Pro Glu  
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 Ala Cys Phe Thr Glu Asp Cys Val Arg Lys Phe Lys Cys Cys Gln Ile  
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Gly Phe Gln Val Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu  
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Ala Leu Leu Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys  
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Gly Lys Phe Tyr His Cys Ile Asn Tyr Thr Thr Gly Glu Met Phe Asp  
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Val Ser Val Val Asn Asn Tyr Ser Glu Cys Lys Ala Leu Ile Glu Ser  
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Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu  
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Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu Tyr Trp Ile Asn Leu  
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Val Phe Ile Val Leu Phe Thr Gly Glu Cys Val Leu Lys Leu Ile Ser  
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Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val  
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Val Val Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Leu Ile Glu  
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Lys Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg  
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Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr  
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Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly  
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Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser  
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Asn Phe Ala Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn  
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Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr  
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Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro  
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Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys Gly  
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Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile  
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Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu  
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Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu  
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Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp  
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Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu Ser Asp Phe Ala Asp Ala  
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Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile  
 1825 1830 1835 1840

Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp  
 1845 1850 1855

Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met  
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 1875 1880 1885  
 Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln  
 1890 1895 1900  
 Glu Glu Val Ser Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu  
 1905 1910 1915 1920  
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 1940 1945 1950  
 Lys Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser  
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 Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys Glu  
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 Ile Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Val Pro Leu Glu Asp  
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 Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys  
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 Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu

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Thr	Pro	Phe	Asn	Pro	Ile	Arg	Lys	Leu	Ala	Ile	Lys	Ile	Leu	Val	His
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Ser	Leu	Phe	Asn	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Val
	130					135					140				
Phe	Met	Thr	Met	Ser	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr
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Thr	Phe	Thr	Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Ile	Lys	Ile	Leu	Ala
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Arg	Gly	Phe	Cys	Leu	Glu	Asp	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn
			180					185					190		
Trp	Leu	Asp	Phe	Thr	Val	Ile	Thr	Phe	Ala	Tyr	Val	Thr	Glu	Phe	Val
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Asn	Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala
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Leu	Lys	Thr	Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala
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Leu	Ile	Gln	Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val
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Phe	Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly
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Glu	Ile	Asn	Ile	Thr	Ser	Phe	Phe	Asn	Asn	Ser	Leu	Asp	Gly	Asn	Gly
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Glu	Asp	Lys	Ser	His	Phe	Tyr	Phe	Leu	Glu	Gly	Gln	Asn	Asp	Ala	Leu
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Leu	Cys	Gly	Asn	Ser	Ser	Asp	Ala	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Ile
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Cys	Val	Lys	Ala	Gly	Arg	Asn	Pro	Asn	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp
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Thr	Phe	Ser	Trp	Ala	Phe	Leu	Ser	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp
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Phe	Trp	Glu	Asn	Leu	Tyr	Gln	Leu	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr
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Tyr	Met	Ile	Phe	Phe	Val	Leu	Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu

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Ile	Asn	Leu	Ile	Leu	Ala	Val	Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn
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Gln	Ala	Thr	Leu	Glu	Glu	Ala	Glu	Gln	Lys	Glu	Ala	Glu	Phe	Gln	Gln
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Met	Leu	Glu	Gln	Leu	Lys	Lys	Gln	Gln	Glu	Glu	Ala	Gln	Ala	Ala	Ala
	450					455					460				
Ala	Ala	Ala	Ser	Ala	Glu	Ser	Arg	Asp	Phe	Ser	Gly	Ala	Gly	Gly	Ile
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Gly	Val	Phe	Ser	Glu	Ser	Ser	Ser	Val	Ala	Ser	Lys	Leu	Ser	Ser	Lys
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Ser	Glu	Lys	Glu	Leu	Lys	Asn	Arg	Arg	Lys	Lys	Lys	Lys	Lys	Gln	Lys
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Gln	Ser	Gly	Glu	Glu	Glu	Lys	Asn	Asp	Arg	Val	Leu	Lys	Ser	Glu	Ser
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Glu	Asp	Ser	Ile	Arg	Arg	Lys	Gly	Phe	Arg	Phe	Ser	Leu	Glu	Gly	Ser
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Arg	Leu	Thr	Tyr	Glu	Lys	Arg	Phe	Ser	Ser	Pro	His	Gln	Ser	Leu	Leu
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Ser	Ile	Arg	Gly	Ser	Leu	Phe	Ser	Pro	Arg	Arg	Asn	Ser	Arg	Ala	Ser
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Leu	Phe	Ser	Phe	Arg	Gly	Arg	Ala	Lys	Asp	Ile	Gly	Ser	Glu	Asn	Asp
			580					585					590		
Phe	Ala	Asp	Asp	Glu	His	Ser	Thr	Phe	Glu	Asp	Asn	Asp	Ser	Arg	Arg
		595					600					605			
Asp	Ser	Leu	Phe	Val	Pro	His	Arg	His	Gly	Glu	Arg	Arg	His	Ser	Asn
	610					615					620				
Val	Ser	Gln	Ala	Ser	Arg	Ala	Ser	Arg	Val	Leu	Pro	Ile	Leu	Pro	Met
625						630					635				640
Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys	Asn	Gly	Val	Val	Ser	Leu
				645					650					655	
Val	Gly	Gly	Pro	Ser	Thr	Leu	Thr	Ser	Ala	Gly	Gln	Leu	Leu	Pro	Glu
			660					665					670		
Gly	Thr	Thr	Thr	Glu	Thr	Glu	Ile	Arg	Lys	Arg	Arg	Ser	Ser	Ser	Tyr
			675				680					685			
His	Val	Ser	Met	Asp	Leu	Leu	Glu	Asp	Pro	Thr	Ser	Arg	Gln	Arg	Ala
	690					695					700				
Met	Ser	Ile	Ala	Ser	Ile	Leu	Thr	Asn	Thr	Met	Glu	Glu	Leu	Glu	Glu

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Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys						
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Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val						
		740		745		750
Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys						
		755		760		765
Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr						
		770		775		780
Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly						
		785		790		800
Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr						
		805		810		815
Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser						
		820		825		830
Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val						
		835		840		845
Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp						
		850		855		860
Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala						
		865		870		875
Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala						
		885		890		895
Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys						
		900		905		910
Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe						
		915		920		925
Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile						
		930		935		940
Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu						
		945		950		955
Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn						
		965		970		975
Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala						
		980		985		990
Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly						
		995		1000		1005
Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu Phe						

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Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu Ile Lys		
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Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile Ser Asn His		
	1045	1050 1055
Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu Lys Asp Gly Asn		
	1060	1065 1070
Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu Lys Tyr Val Val Asp		
	1075	1080 1085
Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr		
	1090	1095 1100
Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr Glu		
	1105	1110 1115 1120
Glu Phe Ser Ser Glu Ser Asp Met Glu Glu Ser Lys Glu Lys Leu Asn		
	1125	1130 1135
Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Ile Gly Ala Pro Ala		
	1140	1145 1150
Glu Gly Glu Gln Pro Glu Val Glu Pro Glu Glu Ser Leu Glu Pro Glu		
	1155	1160 1165
Ala Cys Phe Thr Glu Asp Cys Val Arg Lys Phe Lys Cys Cys Gln Ile		
	1170	1175 1180
Ser Ile Glu Glu Gly Lys Gly Lys Leu Trp Trp Asn Leu Arg Lys Thr		
	1185	1190 1195 1200
Cys Tyr Lys Ile Val Glu His Asn Trp Phe Glu Thr Phe Ile Val Phe		
	1205	1210 1215
Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Ile		
	1220	1225 1230
Glu Gln Arg Lys Thr Ile Lys Thr Met Leu Glu Tyr Ala Asp Lys Val		
	1235	1240 1245
Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu Lys Trp Val Ala Tyr		
	1250	1255 1260
Gly Phe Gln Val Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu		
	1265	1270 1275 1280
Ile Val Asp Val Ser Leu Val Ser Leu Thr Ala Asn Ala Leu Gly Tyr		
	1285	1290 1295
Ser Glu Leu Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg		
	1300	1305 1310
Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Ala Val Val Asn		

1315	1320	1325
Ala Leu Leu Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys		
1330	1335	1340
Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe Ala		
1345	1350	1355 1360
Gly Lys Phe Tyr His Cys Ile Asn Tyr Thr Thr Gly Glu Met Phe Asp		
	1365 1370	1375
Val Ser Val Val Asn Asn Tyr Ser Glu Cys Lys Ala Leu Ile Glu Ser		
	1380 1385	1390
Asn Gln Thr Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn Val		
	1395 1400	1405
Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala Thr Phe Lys Gly Trp		
1410	1415	1420
Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asn Val Glu Leu Gln		
1425	1430	1435 1440
Pro Lys Tyr Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe		
	1445 1450	1455
Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile		
	1460 1465	1470
Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile		
1475	1480	1485
Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu		
1490	1495	1500
Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn Lys Phe		
1505	1510	1515 1520
Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe Asp Ile Ser		
	1525 1530	1535
Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr		
	1540 1545	1550
Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu Tyr Trp Ile Asn Leu		
	1555 1560	1565
Val Phe Ile Val Leu Phe Thr Gly Glu Cys Val Leu Lys Leu Ile Ser		
1570	1575	1580
Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val		
1585	1590	1595 1600
Val Val Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Leu Ile Glu		
	1605 1610	1615
Lys Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg		



1620	1625	1630
Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr 1635	1640	1645
Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly 1650	1655	1660
Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser 1665	1670	1675 1680
Asn Phe Ala Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn 1685	1690	1695
Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr 1700	1705	1710
Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro 1715	1720	1725
Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys Gly 1730	1735	1740
Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile 1745	1750	1755 1760
Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu 1765	1770	1775
Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu 1780	1785	1790
Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp 1795	1800	1805
Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu Ser Asp Phe Ala Asp Ala 1810	1815	1820
Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile 1825	1830	1835 1840
Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp 1845	1850	1855
Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met 1860	1865	1870
Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe Met Ala Ser Asn Pro 1875	1880	1885
Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln 1890	1895	1900
Glu Glu Val Ser Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu 1905	1910	1915 1920
Leu Lys Gln Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys		

1925	1930	1935
Gly Lys Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp		
1940	1945	1950
Lys Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser		
1955	1960	1965
Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys Glu		
1970	1975	1980
Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys Asp Ile		
1985	1990	1995
		2000
Arg Glu Ser Lys Lys		
2005		

<210> 37  
 <211> 912  
 <212> DNA  
 <213> Homo sapiens

<400> 37

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aaaagcctgt	ggaagatcag	ttccacaact	gagagctttg	ggctgcttca	gacatatgtc	180
tgtgtgtacg	ctgtgaaggt	gtttctcttc	acagttcccc	gccctctagt	ggtagttaca	240
ataatgccat	ttttagtcc	ctgtacagga	aatgcctctt	cttacttcag	ttaccagaat	300
ccttttacag	gaagttaggt	gtggtctttg	aaggagaatt	aaaaaaaaaa	aaaaaaaaaa	360
aaaaaagatt	tttttttttt	taaagcatga	tgggaatttta	gctgcagtct	tcttggggcc	420
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ttattatgct	tattctctgt	gatgcttctc	tacctttaca	gtagtagaat	ccttggggaa	540
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ctattagaga	atccaggcat	ggcagtttcc	tccccagtg	tgcaaggacc	atcttcatgc	660
ctatgtctgt	cgctaggcat	gagggctctc	aggaatgggt	gaaaaaaatg	agggatgttt	720
tggaggcact	ataatactgg	ggagggcagt	ctgctagctg	gtagctgaaa	ggtcctgggt	780
tacttcaaca	ttttttttta	ataaaactgt	gcagtagttt	ttgttatttt	agggttccct	840
ctgttttatc	tgggtgatgc	tgcagaagtg	aactgcataa	cacatttcac	tcttagaaat	900
gcattccata	ta					912

<210> 38  
 <211> 722  
 <212> DNA  
 <213> Homo sapiens

<400> 38

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ggcacagtca	gtgctggtac	cgccaggacc	tgacagcttc	cgcttcttta	ccagggaatc	180
ccttgctgct	attgaacaac	gcattgcaga	agagaaagct	aagagaccca	aacagggaac	240
caaggatgag	gatgatgaaa	atggcccaaa	gccaaacagt	gacttgggaag	cagsaaaatc	300
tcttccattt	atttatggag	acattcctcc	agagatgggt	tcagtgcctc	tggaggatct	360
ggacccctac	tatatcaata	agaaagtgag	ttcttagtca	agttgccttc	actgcctatt	420
tactaattgg	ttctgggcta	gtcccaggga	tgatggtgaa	gaaggctggc	ctccttcctt	480
ctgtctaaag	tatcactaag	atgctggatg	ggcctgaccg	tgtaatggac	caatgatcct	540

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agaagtcttt tggaagcact catttgaacc tgcatttgtg agacaggcag agaactgggtg 600
aggcatcctc cagcgcgga attaaggaag gacaaaagcc tattcacctt cttgaataca 660
aattatatgc ttaaaccagt gtaaattgac cctgattccc taataatggt gagaagcaaa 720
aa 722

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<210> 39
<211> 561
<212> DNA
<213> Homo sapiens

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<400> 39
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tggtatacac tattttacag ggcaatattt ataaataatg gttttacttt tctcttaaaa 180
tattcttaat atatatctta agttttgttt tatgtgtgtg gttttctttt tcagacgttt 240
atagtattga ataaaggga agcaatctct cgattcagtg ccaccctgc cctttacatt 300
ttaactccct tcaaccctat tagaaaatta gctattaaga ttttgggtaca ttcataatcct 360
ttttcaaata gtcacttaat atgattttct tctttgacca agttattgag ctacacattt 420
tccaaaatat ctgtggttgg caatgttatg tgttctttct ttttctttcc ttttactcaa 480
tcgttagcat gttgcaaaat gagatcacag gtaagtgaat tactttcccc cgtcttctaa 540
gtgtttcttc tctacccaac t 561

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<210> 40
<211> 510
<212> DNA
<213> Homo sapiens

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<400> 40
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atagtaagca ctaaagtttt aaacttcatg gtgggtgaagg catggtagtg cataaaagta 180
agatttttcc attgaacttt gtcttccttg acgatattct actttattca atatgctcat 240
tatgtgcacg attgttacca actgtgtatt tatgaccatg agtaaccctc cagactggac 300
aaagaatgtg gagtaagtat aaatatTTTT caatatgtac ctccctttat gtttcatatt 360
gtgcttttaa caccttgaga cctcctcaat ttctttaaca aatcatgcta gctactgtta 420
accagaccct gattcaaatt ctttctgtgc actaaatgtc ttctaggaca aagcttgtag 480
tgggctcact tagttgtgta aattactgca 510

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<210> 41
<211> 370
<212> DNA
<213> Homo sapiens

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<400> 41
taagatatgt acttgtaaata taaccactag atttttaatg tgagcttggc tattgtctct 60
caggtatacc ttacaggaa tttatacttt tgaatcactt attaaaatac ttgcaagggg 120
cttttgttta gaagatttca catttttacg ggatccatgg aattgggttg atttcacagt 180
cattactttt gcgtaagtat cttaatacat tttctatcct ggaagagtaa atcactgggtg 240
ggagcctata ctatattttc cttggtggct tgccttgaca gaccaagcat ttntcttagt 300
aatcatagtt ttcttccaat caaattatcc agtttggtgaga aattaggaac tatcatagta 360
aattacatgg 370

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<210> 42

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<211> 370  
<212> DNA  
<213> Homo sapiens

<400> 42  
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gccattttcc tcttaattgg gaaagctgat ggcgacactc atgaaattaa aaaggtcttg 120  
atgaaagacc aangaagacg tagattttccc taaattctga ataactctga ttttaattcta 180  
caggtagtga acagaatttg taaacctagg caatgtttca gctcttcgaa ctttcagagt 240  
cttgagagct ttgaaaacta tttctgtaat tccaggtaag aagaaaatgg tataaggtgg 300  
taggccccctt atatctccaa ctgtttcttg tgttctgtca ttgtgtttgt gtgtgaaccc 360  
cctattacag 370

<210> 43  
<211> 410  
<212> DNA  
<213> Homo sapiens

<400> 43  
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tgtcattgtg tttgtgtgtg aacccccctat tacagatatg tgacagagtt tgtggacctg 120  
ggcaatgtct cagcgttgag aacattcaga gttctccgag cattgaaaac aatttcagtc 180  
attccaggtg agagctaggt taaacaccga ggctgacttt agctacagtg gtgctacaat 240  
cacagctttt gtgcagaagc cttgttgcta gttgcatatt gcaaataaat atgtaaaaaa 300  
gcaagaattg gtacatcatt ttttggtatg atttgattct ttgcttttta cccgttgctt 360  
tctttaaaac tattctaaat cagcctttga gtttaacaag tgttgcatga 410

<210> 44  
<211> 1066  
<212> DNA  
<213> Homo sapiens

<400> 44  
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tcacaaacat taaactaata ttgttggcat tctgcatgac atttttatct tccaggccaa 180  
gctcatgata tttttgccgg taaaatagct gttgagtagt atatttaant tcccccttct 240  
gattttgttt gtaggcctga agaccattgt gggggccctg atccagtcag tgaagaagct 300  
ttctgatgtc atgatcttga ctgtgttctg tctaagcgtg tttgcgctaa taggattgca 360  
gttggttcatt ggcaacctac gaaataaatg tttgcaatgg cctccagata attcttcctt 420  
tgaaataaat atcacttcct tctttaacaa ttcattggat gggaaatggt ctactttcaa 480  
taggacagtg agcatattta actgggatga atatattgag gataaaagta agatatactc 540  
tataaaccat taagttgttt agttctctaa atatttaaata ttatatataa tggaaattat 600  
ctcaatttag atgtgaatca agtgacttag actaatttaa gatgatttaa tacatataaa 660  
agagatatca aaggatacct tattctatct tttttatctg tccattgata tagtaaaagt 720  
tctcatttga aaatgtgttg tcttatactc atggtgaaag taatttcata ttatgccata 780  
ttaaaaaagg tttatttggg agacattaat caggtttttc agtcatttta ataaataagt 840  
cagtagtttg aactattcmg cgtattccac tgaatgtcgt ttaagaagac tgaggggaaa 900  
taatttggcc ctatttgggt gatgcaacat atgtattgag tacatatgct atatctgaaa 960  
ctagagaaac catttatcaa gatgaaataa gaatttgtgt gctcctcaga aggttaagta 1020  
accctgattt agccattcac ttcattccata ttctaattag tccctt 1066

<210> 45  
<211> 385

<212> DNA  
<213> Homo sapiens

<400> 45  
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tatgattgaa aacattttgtg agcttttgcca cctaaacagg gtggctgaag tgttttacag 120  
gattttaatg attcttttcta ttccttttctc tttaaataagg tcactttttat tttttacagg 180  
ggcaaaatga tgctctgctt tgtggcaaca gctcagatgc agggtaagtg tatgcttcct 240  
actgagtttc agtccacact gctccatcag tgtcaataac ctgccacctc ccaactcatcc 300  
agtcccacca ctctcactc aaaaccctcc ataaattcta cttcacggtg actctcagaa 360  
tgaccaggat aagtgtagat tctca 385

<210> 46  
<211> 430  
<212> DNA  
<213> Homo sapiens

<400> 46  
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cattatataa atcagtcacac ttagtgctga gttaagtact gggtaagggtg agagaaatcg 120  
gcttttttct agtgccctgta taaaacagac attggcatat attaaaacag gaaaaccaat 180  
tagcagactt gccggttattg actycctctc tttcctctaa cctaattaca gccagtgtcc 240  
tgaaggatac atctgtgtga aggctggtag aaacccaac tatggctaca cgagctttga 300  
cacctttagt tgggcctttt tgccttatt tctctcatg actcaagact tctgggaaaa 360  
cctttatcaa ctggtgagaa cagataaaat catttttctg agaatcataa aacaccgaac 420  
tcaagagaat 430

<210> 47  
<211> 646  
<212> DNA  
<213> Homo sapiens

<400> 47  
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aaaatctctc ttccattttg cagacactac gtgctgctgg gaaaacgtac atgatatttt 120  
ttgtgctggt catttttcttg ggctcattct atctaataaa tttgatcttg gctgtgggtg 180  
ccatggccta tgaggaacag aatcaggcca cattggaaga ggctgaacag aaggaagctg 240  
aatttcagca gatgctcgaa cagttgaaaa agcaacaaga agaagctcag gtatagtga 300  
caagcatacg gtcctttgtt tttctgtatc taaattcttt aacctaaatg ttgaggctcag 360  
tggcaaggta gttgacatta gaaataggtc atatgtgttt ggtaagtgtc aggagcctgt 420  
ttggttatta agaagttatt actttattgc aatgatctct gtcaatagtg tcaatagtaa 480  
tggcatcaaa aaatggataa ttataattgc ttactgaca tttttttctc cttgtgact 540  
ccttgaggaa attaatgatt aacaaaggcc tcatgtactc aaacttgca agtagataaa 600  
cctacatgtc ctgagttgaa gtatttttctt aggggaagag gaattc 646

<210> 48  
<211> 711  
<212> DNA  
<213> Homo sapiens

<400> 48  
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ctgtgttcta aaacacagaa taaaatggag aattgttttt caagattatc ttcatgatat 120  
tgaagctcaa ttaagcagta acatgataat tatttttttaa gatnatatgc aacttcccac 180

atacttttgcg	cccttctag	cggcagctgc	agccgcattct	gctgaatcaa	gagacttcag	240
tggtgctggt	gggataggag	ttttttcaga	gagttcttca	gtagcatcta	agttgagctc	300
caaaagtga	aaagagctga	aaaacagaag	aaagaaaaag	aaacagaaag	aacagtctgg	360
agaagaagag	aaaaatgaca	gagtcctaaa	atcggaatct	gaagacagca	taagaagaaa	420
aggtttccgt	ttttccttgg	aaggaagtag	gctgacatat	gaaaagagat	tttcttctcc	480
acaccaggta	aaaatattaa	attacatgaa	ttgtgttctc	ataaattttt	taaaagaata	540
tgccagaatt	taatggagag	aaaaccgcct	tccacctgga	tggcacaatg	ctttcagagt	600
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<210> 49  
 <211> 1026  
 <212> DNA  
 <213> Homo sapiens

<400> 49

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aagtgccaaa	atgccaccag	cagtcattcag	aggggtgctt	tcttccacat	gtccaatgac	180
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cagctcttaa	ctctcttcat	ctcatttttg	tttcttttct	tgttattcat	agtccttact	300
gagcatccgt	ggctcccttt	tctctccaag	acgcaacagt	agggcgagcc	ttttcagctt	360
cagagggtcg	gcaaaggaca	ttggctctga	gaatgacttt	gctgatgatg	agcacagcac	420
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gcgccacagc	aatgtcagcc	aggccagccg	tgccctccagg	gtgctcccca	tcctgcccat	540
gaatgggaag	atgcatagcg	ctgtggactg	caatgggtgtg	gtctccctgg	tcggggggccc	600
ttctaccctc	acatctgctg	ggcagctcct	accagagggtg	aggccaacyy	magattgcag	660
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gaatttkttg	agtttsttgc	ccaaaggctg	ggagtttgtt	caatcaagct	gttaactgtc	780
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agagaatata	attagamgtm	atctttcatc	ayyattacta	tggtatgaaa	ctcgccaaaa	900
agcaaagcaa	caattttatca	agcataatgt	tygaytaata	tagttaaatt	aaatccaagg	960
aaattaatgc	tcacaaatta	aataaatact	taaggatttt	gtgattgttg	ttcattttaa	1020
aggaga						1026

<210> 50  
 <211> 601  
 <212> DNA  
 <213> Homo sapiens

<400> 50

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aaagcatggg	gtatattttag	ttaaataaca	cctgttgtag	gaatgctttg	ggctttgctg	180
ctttcaaaaa	tagtggttat	ttcatctgaa	attctacttc	tagggcacia	ctactgaaac	240
agaaataaga	aagagacggg	ccagttctta	tcatgtttcc	atggatttat	tggaagatcc	300
tacatcaagg	caaagagcaa	tgagtatagc	cagtattttg	accaacacca	tggaagggtat	360
gttaaaaagtc	ctgcgtcaca	gttacttggt	gctttcctaa	tgatgaaaaa	cacttcataa	420
atttcaataa	aatacttctc	gacttgatat	tgtatcatta	ttacacattt	tactaaataa	480
cagtaaaaatc	cgtgcataac	tcatggattc	atatattcca	cagatttttt	ttttttatat	540
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a						601

<210> 51

<211> 645  
<212> DNA  
<213> Homo sapiens

<400> 51  
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ctgttcctcc agcagattaa ccataatat cttttaacaa ctttagattt tttaaattcc 120  
ttttaattta aaccaaactc gcttaataga aagtaagcag tttcatgag gattctaact 180  
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gctaatatgt gtttgatttg ggactgttgt aaaccatggt taaagggtga acacctgtgc 300  
aacctggttg taatggaccc atttggtgac ctggccatca ccatctgcat tgtcttaaat 360  
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gttggaacc tggtaagcct cactgagagt ttctcttcct cttgaaagag tttataattg 480  
ccttagtgaa ttttacatat tgctctcaaa ttaatatca actaattggc catgtatatc 540  
ttgacatcaa atgttttagca tcccttttaa ataacaaaa aatgttgcta ccatagtgc 600  
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<210> 52  
<211> 485  
<212> DNA  
<213> Homo sapiens

<400> 52  
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atttaggtct tcacagggat cttcacagca gaaatgttcc tcaagataat tgccatggat 180  
ccatattatt actttcaaga aggctggaat atttttgatg gttttattgt gagccttagt 240  
ttaatggaac ttggtttggc aaatgtggaa ggattgtcag ttctccgatc attccggctg 300  
gtaaattaaac tgggagtgtt cataaaatgt actttrtaat taattagtct tcattctcat 360  
ctagtaaaaa tggcaagatt tcccatcatt ataatatatt tgaatacctt ctaaaacaga 420  
ttggattgcc ataccaccaa atggtagttt cttcttcac atagctttta taaagttcac 480  
ttaaa 485

<210> 53  
<211> 602  
<212> DNA  
<213> Homo sapiens

<400> 53  
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tatataataa taaaataaaa taaaaataaa aataaaaaaa taaaaataaa ataaaattgc 120  
agattttttt agaaatgcag agattaacac tgttcttgct tttatttcca gtcctcagtt 180  
ttcaagttgg caaaatcttg gccaaactta aatatgctaa ttaagatcat tggcaattct 240  
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gtgctgtgtg gagagtggat agagaccatg tgggactgta tggaggctgc tggccaaacc 480  
atgtgcctta ctgtcttcat gatggctcat gtgattggaa atctagtggg atgtagcaaa 540  
aacattttcc tcattttcat taaaaataat gtaatcatta aaaagtgttc aactgaagaa 600  
ta 602

<210> 54  
<211> 803  
<212> DNA

<213> Homo sapiens

<400> 54

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agtattattt tatattgacc aagcattttt atttcattca ctttttttca gaatagtgtg 120
tcatgaatta gcagaaatgc atgttagaat aaaataaggt gtcaagaaca atcttagaaa 180
actaatgatg gaaagcaatt gaagcaatag aatgttttga tcacctgttt ttccctgctgt 240
gtttcagggtt ctgaacctct tcttggcctt gcttttgagt tccttcagtt ctgacaatct 300
tgctgccact gatgatgata acgaaatgaa taatctccag attgctgtgg gaaggatgca 360
gaaaggaatc gattttgtta aaagaaaaat acgtgaattt attcagaaag cctttgttag 420
gaagcagaaa gcttttagatg aaattaaacc gcttgaagat ctaaataata aaaaagacag 480
ctgtatttcc aaccatacca ccatagaaat aggcaagac ctcaattatc tcaaagacgg 540
aaatggaact actagtggca taggcagcag ttagaaaaa tatgtcgtgg atgaaagtga 600
ttacatgtca ttataaaaca accctagcct cactgtgaca gtaccaattg ctgttggaga 660
atctgacttt gaaaatttaa atactgaaga attcagcagc gagtcagata tggaggaaaag 720
caaagaggta aaatgtttaa taaggagata ttttggtgta tataatctgt gttaaataatc 780
aggtgtttta tgcgtgtctc tgt                                     803
```

<210> 55

<211> 615

<212> DNA

<213> Homo sapiens

<400> 55

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aaaaaaaaata ctatggtggt gtatctaata ttgtgacccc tgacctttac caaagcggat 120
tggcattatg tttaagttct taattacaga tcaagaaaaa tgcatacaga agatgggggg 180
gggcacacct aattaatttt tatatttaga ttaaagaaaa taattaaatg tgtttttttg 240
tgggattgat tttcagaagc taaatgcaac tagttcatct gaaggcagca cggttgatat 300
tggagctccc gccgagggag aacagcctga ggttgaacct gaggaatccc ttgaacctga 360
agcctgtttt acagaagnnn nnnnnnaagc aaaacaataa catatgtggt cttgagtatc 420
ctcttttcta cccatttttt cctattttat taaatgtctg tttatttgtc taccatctag 480
ttcatctatc tatctgtatc tatctatcta tctatctatc tagtaatcat ctatacctat 540
ccaacaactg tacattttatt tgtttttttt ttttgcattt gctgtttgaa aaaaaatgca 600
acgtttttaa ggcaa                                     615
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<210> 56

<211> 400

<212> DNA

<213> Homo sapiens

<400> 56

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gtaataatgt aatgaatct cccaccaaca caaatatacc taatcaaaga gtaatttttt 120
gtcttcattt ttttcccaca tatttttagac tgtgtacgga agttcaagtg ttgtcagata 180
agcatagaag aaggcaaagg gaaactctgg tggaatttga ggaaaacatg ctataagata 240
gtggagcaca attggttcga aaccttcatt gtcttcatga ttctgctgag cagtggggct 300
ctggtaggtg atgcatgatc cactccttca cctttcatct gaaatctttt ccctttccct 360
tcaatcaact catattaccc actttttaa taaagggttt                                     400
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<210> 57

<211> 560

<212> DNA

<213> Homo sapiens



<400> 57

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aaattactga aacccttggt tgactgaaat gccagtcag cagtcattta tgatcagata 60
atgataaagt aaaattcagc catgggaaac attaaacctt ccagccttag gcacctgata 120
agagcttgca tcgtttcctt ttttaagaaa tcatcaatta gagactgttt ctgatcataa 180
aatttaatag aattttttga cttacaggcc tttgaagata tatacattga gcagcgaaaa 240
accattaaga ccatgttaga atatgctgac aagggttttca cttacatatt cattctggaa 300
atgctgctaa agtgggttgc atatgggttt caagtgtatt ttaccaatgc ctggtgctgg 360
ctagacttcc tgattgttga tgtgagtatg ctgcactttg ctgctttatt cattggcata 420
tatgtaatag ttctagcaat ggtgcctgac acagtgtagg cactcagtaa cactgtatca 480
gcccaaatat aaattatggt tctcatttca cagtgaagg atgcctcaaa acatttttta 540
ccaatttaaa tacatatata 560
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<210> 58

<211> 480

<212> DNA

<213> Homo sapiens

<400> 58

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gcaaggctga actgtgtaga cttttttata tgtaaataag aaaattgtgt tgctttttct 180
gtataggtct cactggttag cttaactgca aatgccttgg gttactcaga acttgggtgcc 240
atcaaattccc tcagaacact aagagctctg aggccactga gagctttgtc ccggtttgaa 300
ggaatgaggg taagactgaa tgccttagag tttgtcagaa ttattattga gagcagactg 360
acactttgta ccatggaaat gtcaaattta tggagaattt gtgtcttaca cattcatact 420
gacatagcta atcaatcaaa aataatattt accagatgcc cataatactt ggcactgctg 480
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<210> 59

<211> 640

<212> DNA

<213> Homo sapiens

<400> 59

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taattttaaa attcttagtt ggagctacca gagtctagtt tctacccaat attcaacttt 60
gaaacagatt tttttaatca tttgactgtt cttttaataa tgtttaaaaa taagtaaata 120
tttgttgttg gcttttctct ttttttccct tctcatcctg tgccagggtg ttgtaaatagc 180
tcttttagga gccattccat ctatcatgaa tgtacttctg gtttgtctga tcttttggct 240
aatattcagt atcatgggag tgaatctctt tgctggcaag ttttaccatt gtattaatta 300
caccactgga gagatgtttg atgtaagcgt ggtcaacaac tacagtgagt gcaaagctct 360
cattgagagc aatcaaactg ccagggtgaa aaatgtgaaa gtaaaactttg ataacgtagg 420
acttggatat ctgtctctac ttcaagtagt aagtaatcac tttattattt tccatgatgt 480
gtaattaaaa tgagtctaaa gtttttcttc ctcataatga gatatccacc tgttagaatg 540
gctattatca aacagataaa tgacaataaa tgctggcaag aatgtgaaga aaaggaacc 600
cttgtagatt gttggcaggg atgtaaatta gtatagcttt 640
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<210> 60

<211> 480

<212> DNA

<213> Homo sapiens

<400> 60

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atttgaagta ttttcaatgc atatcgcaaa acattgcccc aaaagtgaat acaaatttca 60
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```

ttatttttcta aaattataat tttgggaaaa aagaaaatga tatgactttt cttacaggcc 180
acgtttaagg gatggatgga tattatgtat gcagctgttg attcacgaaa tgtaagtcta 240
gttagaggga aattgttttag tttgattaaa tgtatatattc tacaatattg taatttagtg 300
atattgtcaa taaaataaaaa ttatgtgctt aatttataaa acccatctat attataagga 360
taaaatattt aatcatacta tttctttcaa aattatcata ggatgatttt ctctaatacac 420
tctgtatctt ttaacatatac ttttctagta ttttagcaagg cacctgacac aaaactttat 480

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<210> 61  
 <211> 366  
 <212> DNA  
 <213> Homo sapiens

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<400> 61
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cctgtacatg tatctttatt ttgtcatctt tattatTTTT gggttcattct ttaccttgaa 180
tcttttctatt ggtgtcatca tagataactt caaccaacag aaaaagaaga taagtatatt 240
aaaacttcat ccttgctctg aaatatgaac taaatatattc atactctttc ctttagcctc 300
caaaatgcaa tcaccaaaaa aagaatataa aattcagaaa ttattttgag acatttgata 366
atcgat

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<210> 62  
 <211> 560  
 <212> DNA  
 <213> Homo sapiens

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<400> 62
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aaatatgact aatatggcat aatttatata ttgaataaag gcatctctat aaatacagat 120
attagtaaca atagaatgaa atgtggggagc caattttcac atgattacta aggtggattt 180
tatagccagc aaagaacaca attttaacaa gtgttgcttt catttcttta ctttggaggt 240
caagacattt ttatgacaga agaacagaag aaatactaca atgcaatgaa aaaactgggt 300
tcaaagaaac cacaaaaacc catacctcga cctgctgtaa gaataacata ttttcattgc 360
ctgttaaaac tatattacct aaccgtttca cagcccgaat ttctagaaac tagttatttt 420
tgtggatttg taacacaaaag ttttttacct taacaatggg actagctagc cttaaataagct 480
tgaaaaatgt actttacata tataatatgt ataaattata taatgcataa catattttat 540
atgtaaacat ataaaatata

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<210> 63  
 <211> 650  
 <212> DNA  
 <213> Homo sapiens

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<400> 63
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gtttctaatt gaactttttac atattatttg ttccagaaca aattccaagg aatggctctt 180
gattttgtaa ccaaacaagt ctttgatata agcatcatga tcctcatctg ctttaacatg 240
gtcaccatga tgggtgaaac cgatgaccag agtcaagaaa tgacaaacat tctgtactgg 300
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tttaaaactt tagagggtgt tttcactaat ctttctcatt catcccaaac tcccaataaa 540
aaatctaata gtccattggt ttagtttttag tttgccattt ctctaattgc atgctgtgct 600

```

tgaaatgatg agtgggaatac aaggaattta tatttttcagc tttcatttat

650

<210> 64

<211> 3700

<212> DNA

<213> Homo sapiens

<400> 64

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<210> 65  
 <211> 9112  
 <212> DNA  
 <213> Homo sapiens

<400> 65

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<212> PRT

<213> Homo sapiens

<400> 67

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Lys	Ala	Lys	Lys	Pro	Lys	Lys	Glu	Gln	Asp	Asn	Asp	Asp	Glu	Asn	Lys	35	40	45	
Pro	Lys	Pro	Asn	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Asn	Leu	Pro	Phe	Ile	50	55	60	
Tyr	Gly	Asp	Ile	Pro	Pro	Glu	Met	Val	Ser	Glu	Pro	Leu	Glu	Asp	Leu	65	70	75	80
Asp	Pro	Tyr	Tyr	Ile	Asn	Lys	Lys	Thr	Phe	Ile	Val	Met	Asn	Lys	Gly	85	90	95	
Lys	Ala	Ile	Ser	Arg	Phe	Ser	Ala	Thr	Ser	Ala	Leu	Tyr	Ile	Leu	Thr	100	105	110	
Pro	Leu	Asn	Pro	Val	Arg	Lys	Ile	Ala	Xaa	Lys	Ile	Leu	Val	His	Ser	115	120	125	
Leu	Phe	Ser	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Val	Phe	130	135	140	
Met	Thr	Leu	Ser	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	145	150	155	160
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Trp	Glu	Asn	Leu	Tyr	Gln	Leu	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	
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Arg	Leu	Thr	Ser	Asp	Lys	Lys	Phe	Cys	Ser	Pro	His	Gln	Ser	Leu	Leu	
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Ser	Ile	Arg	Gly	Ser	Leu	Phe	Ser	Pro	Arg	Arg	Asn	Ser	Lys	Thr	Ser	
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 Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe  
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Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val  
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Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met  
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Met Glu Asp Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Glu  
1825 1830 1835 1840

Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Ala  
1845 1850 1855

Ile Ile Gln Arg Asn Phe Arg Cys Tyr Leu Leu Lys Gln Arg Leu Lys  
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Asn Ile Ser Ser Asn Tyr Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp  
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Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys  
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile  
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu  
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly  
85 90 95

Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr  
100 105 110

Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser  
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe  
130 135 140



Met	Thr	Leu	Ser	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	145	150	155	160
Phe	Thr	Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Ile	Lys	Ile	Leu	Ala	Arg	165	170	175	
Gly	Phe	Cys	Leu	Glu	Asp	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	180	185	190	
Leu	Asp	Phe	Ser	Val	Ile	Val	Met	Ala	Tyr	Val	Thr	Glu	Phe	Val	Ser	195	200	205	
Leu	Gly	Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	210	215	220	
Lys	Thr	Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	225	230	235	240
Ile	Gln	Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	245	250	255	
Cys	Leu	Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	260	265	270	
Leu	Arg	Asn	Lys	Cys	Leu	Gln	Trp	Pro	Pro	Ser	Asp	Ser	Ala	Phe	Glu	275	280	285	
Thr	Asn	Thr	Thr	Ser	Tyr	Phe	Asn	Gly	Thr	Met	Asp	Ser	Asn	Gly	Thr	290	295	300	
Phe	Val	Asn	Val	Thr	Met	Ser	Thr	Phe	Asn	Trp	Lys	Asp	Tyr	Ile	Gly	305	310	315	320
Asp	Asp	Ser	His	Phe	Tyr	Val	Leu	Asp	Gly	Gln	Lys	Asp	Pro	Leu	Leu	325	330	335	
Cys	Gly	Asn	Gly	Ser	Asp	Ala	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Ile	Cys	340	345	350	
Val	Lys	Ala	Gly	Arg	Asn	Pro	Asn	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	355	360	365	
Phe	Ser	Trp	Ala	Phe	Leu	Ser	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	370	375	380	
Trp	Glu	Asn	Leu	Tyr	Gln	Leu	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	385	390	395	400
Met	Ile	Phe	Phe	Val	Leu	Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Val	405	410	415	
Asn	Leu	Ile	Leu	Ala	Val	Val	Ala	Met	Ala	Tyr	Glu	Gly	Gln	Asn	Gln	420	425	430	
Ala	Thr	Leu	Glu	Glu	Ala	Glu	Gln	Lys	Glu	Ala	Glu	Phe	Gln	Gln	Met	435	440	445	

Leu	Glu	Gln	Leu	Lys	Lys	Gln	Gln	Glu	Glu	Ala	Gln	Ala	Val	Ala	Ala		
450						455					460						
Ala	Ser	Ala	Ala	Ser	Arg	Asp	Phe	Ser	Gly	Ile	Gly	Gly	Leu	Gly	Glu		
465					470					475					480		
Leu	Leu	Glu	Ser	Ser	Ser	Glu	Ala	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala		
				485					490					495			
Lys	Glu	Trp	Arg	Asn	Arg	Arg	Lys	Lys	Arg	Arg	Gln	Arg	Glu	His	Leu		
			500					505					510				
Glu	Gly	Asn	Asn	Lys	Gly	Glu	Arg	Asp	Ser	Phe	Pro	Lys	Ser	Glu	Ser		
		515					520					525					
Glu	Asp	Ser	Val	Lys	Arg	Ser	Ser	Phe	Leu	Phe	Ser	Met	Asp	Gly	Asn		
	530					535					540						
Arg	Leu	Thr	Ser	Asp	Lys	Lys	Phe	Cys	Ser	Pro	His	Gln	Ser	Leu	Leu		
545					550					555					560		
Ser	Ile	Arg	Gly	Ser	Leu	Phe	Ser	Pro	Arg	Arg	Asn	Ser	Lys	Thr	Ser		
				565					570					575			
Ile	Phe	Ser	Phe	Arg	Gly	Arg	Ala	Lys	Asp	Val	Gly	Ser	Glu	Asn	Asp		
			580					585					590				
Phe	Ala	Asp	Asp	Glu	His	Ser	Thr	Phe	Glu	Asp	Ser	Glu	Ser	Arg	Arg		
	595						600					605					
Asp	Ser	Leu	Phe	Val	Pro	His	Arg	His	Gly	Glu	Arg	Arg	Asn	Ser	Asn		
610						615					620						
Gly	Thr	Thr	Thr	Glu	Thr	Glu	Val	Arg	Lys	Arg	Arg	Leu	Ser	Ser	Tyr		
625				630						635					640		
Gln	Ile	Ser	Met	Glu	Met	Leu	Glu	Asp	Ser	Ser	Gly	Arg	Gln	Arg	Ala		
			645					650						655			
Val	Ser	Ile	Ala	Ser	Ile	Leu	Thr	Asn	Thr	Met	Glu	Glu	Leu	Glu	Glu		
			660					665					670				
Ser	Arg	Gln	Lys	Cys	Pro	Pro	Cys	Trp	Tyr	Arg	Phe	Ala	Asn	Val	Phe		
		675					680					685					
Leu	Ile	Trp	Asp	Cys	Cys	Asp	Ala	Trp	Leu	Lys	Val	Lys	His	Leu	Val		
690						695					700						
Asn	Leu	Ile	Val	Met	Asp	Pro	Phe	Val	Asp	Leu	Ala	Ile	Thr	Ile	Cys		
705					710					715					720		
Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Met	Glu	His	Tyr	Pro	Met	Thr		
			725						730					735			
Glu	Gln	Phe	Ser	Ser	Val	Leu	Thr	Val	Gly	Asn	Leu	Val	Phe	Thr	Gly		
			740					745					750				

Ile	Phe	Thr	Ala	Glu	Met	Val	Leu	Lys	Ile	Ile	Ala	Met	Asp	Pro	Tyr	755	760	765
Tyr	Tyr	Phe	Gln	Glu	Gly	Trp	Asn	Ile	Phe	Asp	Gly	Ile	Ile	Val	Ser	770	775	780
Leu	Ser	Leu	Met	Glu	Leu	Gly	Leu	Ser	Asn	Val	Glu	Gly	Leu	Ser	Val	785	790	795
Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe	Lys	Leu	Ala	Lys	Ser	Trp	805	810	815
Pro	Thr	Leu	Asn	Met	Leu	Ile	Lys	Ile	Ile	Gly	Asn	Ser	Val	Gly	Ala	820	825	830
Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile	Ile	Val	Phe	Ile	Phe	Ala	835	840	845
Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Ser	Tyr	Lys	Glu	Cys	Val	Cys	850	855	860
Lys	Ile	Asn	Asp	Asp	Cys	Thr	Leu	Pro	Arg	Trp	His	Met	Asn	Asp	Phe	865	870	875
Phe	His	Ser	Phe	Leu	Ile	Val	Phe	Arg	Val	Leu	Cys	Gly	Glu	Trp	Ile	885	890	895
Glu	Thr	Met	Trp	Asp	Cys	Met	Glu	Val	Ala	Gly	Gln	Thr	Met	Cys	Leu	900	905	910
Ile	Val	Phe	Met	Leu	Val	Met	Val	Ile	Gly	Asn	Leu	Val	Val	Leu	Asn	915	920	925
Leu	Phe	Leu	Ala	Leu	Leu	Leu	Ser	Ser	Phe	Ser	Ser	Asp	Asn	Leu	Ala	930	935	940
Ala	Thr	Asp	Asp	Asp	Asn	Glu	Met	Asn	Asn	Leu	Gln	Ile	Ala	Val	Gly	945	950	955
Arg	Met	Gln	Lys	Gly	Ile	Asp	Tyr	Val	Lys	Asn	Lys	Met	Arg	Glu	Cys	965	970	975
Phe	Gln	Lys	Ala	Phe	Phe	Arg	Lys	Pro	Lys	Val	Ile	Glu	Ile	His	Glu	980	985	990
Gly	Asn	Lys	Ile	Asp	Ser	Cys	Met	Ser	Asn	Asn	Thr	Gly	Ile	Glu	Ile	995	1000	1005
Ser	Lys	Glu	Leu	Asn	Tyr	Leu	Arg	Asp	Gly	Asn	Gly	Thr	Thr	Ser	Gly	1010	1015	1020
Val	Gly	Thr	Gly	Ser	Ser	Val	Glu	Lys	Tyr	Val	Ile	Asp	Glu	Asn	Asp	1025	1030	1035
Tyr	Met	Ser	Phe	Ile	Asn	Asn	Pro	Ser	Leu	Thr	Val	Thr	Val	Pro	Ile	1045	1050	1055

Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser  
 1060 1065 1070

Ser Glu Ser Glu Leu Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser  
 1075 1080 1085

Ser Ser Glu Gly Ser Thr Val Asp Val Val Leu Pro Arg Glu Gly Glu  
 1090 1095 1100

Gln Ala Glu Thr Glu Pro Glu Glu Asp Leu Lys Pro Glu Ala Cys Phe  
 1105 1110 1115 1120

Thr Glu Gly Cys Ile Lys Lys Phe Pro Phe Cys Gln Val Ser Thr Glu  
 1125 1130 1135

Glu Gly Lys Gly Lys Ile Trp Trp Asn Leu Arg Lys Thr Cys Tyr Ser  
 1140 1145 1150

Ile Val Glu His Asn Trp Phe Glu Thr Phe Ile Val Phe Met Ile Leu  
 1155 1160 1165

Leu Ser Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg  
 1170 1175 1180

Lys Thr Ile Lys Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr  
 1185 1190 1195 1200

Ile Phe Ile Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln  
 1205 1210 1215

Thr Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp  
 1220 1225 1230

Val Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu  
 1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu Arg  
 1250 1255 1260

Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala Leu Val  
 1265 1270 1275 1280

Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys Leu Ile Phe  
 1285 1290 1295

Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe Ala Gly Lys Phe  
 1300 1305 1310

Tyr His Cys Val Asn Met Thr Thr Gly Asn Met Phe Asp Ile Ser Asp  
 1315 1320 1325

Val Asn Asn Leu Ser Asp Cys Gln Ala Leu Gly Lys Gln Ala Arg Trp  
 1330 1335 1340

Lys Asn Val Lys Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala  
 1345 1350 1355 1360

Leu Leu Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala  
 1365 1370 1375

Ala Val Asp Ser Arg Asp Val Lys Leu Gln Pro Val Tyr Glu Glu Asn  
 1380 1385 1390

Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe  
 1395 1400 1405

Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln  
 1410 1415 1420

Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln  
 1425 1430 1435 1440

Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln  
 1445 1450 1455

Lys Pro Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp  
 1460 1465 1470

Phe Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys  
 1475 1480 1485

Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys Tyr  
 1490 1495 1500

Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val Leu Phe  
 1505 1510 1515 1520

Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His Tyr Tyr Phe  
 1525 1530 1535

Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile  
 1540 1545 1550

Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys Tyr Phe Val Ser Pro  
 1555 1560 1565

Thr Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg  
 1570 1575 1580

Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met  
 1585 1590 1595 1600

Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val  
 1605 1610 1615

Met Phe Ile Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys  
 1620 1625 1630

Lys Glu Ala Gly Ile Asp Asp Met Phe Asn Phe Glu Thr Phe Gly Asn  
 1635 1640 1645

Ser Met Ile Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly  
 1650 1655 1660

Leu Leu Ala Pro Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp  
 1665 1670 1675 1680  
 Thr Ile His Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser  
 1685 1690 1695  
 Val Gly Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val  
 1700 1705 1710  
 Val Val Asn Ser Tyr Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala  
 1715 1720 1725  
 Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe  
 1730 1735 1740  
 Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu  
 1745 1750 1755 1760  
 Phe Ser Lys Leu Ser Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu  
 1765 1770 1775  
 Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met  
 1780 1785 1790  
 Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr  
 1795 1800 1805  
 Lys Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln  
 1810 1815 1820  
 Met Glu Asp Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Glu  
 1825 1830 1835 1840  
 Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Ala  
 1845 1850 1855  
 Ile Ile Gln Arg Asn Phe Arg Cys Tyr Leu Leu Lys Gln Arg Leu Lys  
 1860 1865 1870  
 Asn Ile Ser Ser Asn Tyr Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp  
 1875 1880 1885  
 Leu Pro Ile Lys Gln Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser  
 1890 1895 1900  
 Thr Pro Glu Lys Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser  
 1905 1910 1915 1920  
 Tyr Asp Ser Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys  
 1925 1930 1935  
 Pro Glu Lys Glu Ser Lys Gly Lys Glu Val Arg Glu Asn Gln Lys  
 1940 1945 1950

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<213> Homo sapiens

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gatggattat ttttatttttc tttatgtatt gtgtgcttca atatcctaataaataatatt 180  
agctagggttc actgatgtat agaatctttt tctacattta gatattttctt gcaaagtgtt 240  
taccagaaag caacacaaaa atactatcag tgagtatgtg tttacactgt tctctaagga 300  
gtcaaattcc tcaccttgaa aataattcat cccaggaaga gaaaagggtt tcaaaagact 360  
agagcaggcc acaagggagc tttcgcaaaa ctctacacgt aaagggtaat gtaaacttaa 420  
aacctatttt tcaaacagta atttatatat cttttaattt tagtagttta tgtgtgaaac 480  
aatcatgcaa aacaacaaag tgataaaatt ttttaaaaaa attagtgaga tgcaaaataac 540  
tgaatatgta aaaggctctca tacatatatta tatgtagtag ataagttaca ttttttttagt 600  
gtgttgaggaa atttttagctc acatcacctc tctactgtca tcttggggca ctttcatgac 660  
taccatgct tcatgcagggt ttacttttct ccctgtgaca gaggataatg ggaatgtttt 720  
ttctttggct caattttgtg tgtgtccgcc agtagatggc gtaccacttt gagtgcgac 780  
ggcctttttt tctttctttt ttttttttct caaagctgtt ttctgatata tgttggttac 840  
catagagtga atctcagaac aggaagcggg ggcataagca gagaggattc tggaaagggtc 900  
tctttgtttt cttatccaca gagaaagaaa gaaaaaaaat tgtaactaat ttgtaaacct 960  
ctgtggtcaa aaaaaaaaaa aaaaaaaaaa gctgaacagc tgcagaggaa gacacgttat 1020  
accctaacca tcttggtatgc tgggctttgt tatgctgtaa ttcataaggc tctgttttat 1080  
caggtaagct gacaaaacat ttcattatct gcaccataga acctagctac caggtcattt 1140  
tccttacttt aaaatcatct tcatgctgct atttttaacc cagtgttgtt taaatgtaaa 1200  
ttacaggaac caaaggcatc gtttgatgtg taaactgctt actatttctt tatctttcaa 1260  
agaaaataga gcctgtctgg aaatggtgat ttatggtaca tactaggcat caatggtctt 1320  
gtgtttttgt agatgcttat gattaattgt attcagaaaa aatatttttt attatactta 1380

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<212> DNA  
<213> Homo sapiens

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tggtcccatt cttcctaaat catgctaggg catgctttta acaaggggtca aatatcttgc 180  
tttgcacat ccttgctttc tcgatccagg gccataaaaa aaaaagggaat aaaaccaga 240  
cacagagcca gagcaccct atgccaaatg tcaaagatta taggctaatt tcacctgtat 300  
tctctttcta cagagattat ggagcaagaa aactgaagcc aagccacatc aaggtttgac 360  
agggatgaga tacctgtcaa ggattcatag tagagtggct tactgggaaa ggagcaaaga 420  
atctcttcta gggatattgt aagaataaat gagataattc acagaaggga cctggagctt 480  
ttccggaaaa aggtgctgtg actatctaag gtaactaaac aacttctggg tataagtttg 540  
tttttgtgga aaataaacta aaatctctac tatttaacaa ggacagctgt atcaggacca 600  
aaagaaggca gagggtgtt ttcttccttc ctctaccagt ttgttcttcc aaagaggcaa 660  
atacatacag ggagacatag cacagatgac cttaggggaat ggaatgatgc caaaggctgt 720  
tgatgtaaga aagagagatt aactcagttt tttttttgtt tttgtttttt tgttgttgtt 780  
gttgttgttt tgagacagag tctctctctg tcgcccaggc tggagtgcag tggcatgaac 840

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<212> DNA  
<213> Homo sapiens

<400> 71

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atatattcca caccaaggca tcagtaagaa ttaattttta aagtctgctc taatgtgaat 120
ataaaattat gtaagaactc tgtataataa gctcacagag tacaagaaag gagaggaaaa 180
aagtaaaaga gaactgcgaa agaactatga gggatttcca aacagcaaaa ttgtcattga 240
agccatgaga aactctactc actaaattct ttaatttctc agcctaccca aatattgggc 300
aaacccta atctcttgag gggaaaagct gagagtctgg aactagccta tcttccgagg 360
acttagagac aacagtatgg gaatttcaac gagacgtttt tactttcttt tgaccaagat 420
tcaaattctt tattccagcc cttgataagt aaataagaag gtaaggactc atttatttgt 480
aaaaagtttt tcatgatttt gtgatggcac cttgttccat atcatctcag ataaatcaga 540
ataattttgtg aaaattactc ggtgatttcc acattagata ttttaaacct aatgttattt 600
ctaaaacaaa aaccaaccag gagaatccaa ttaagtaaaa tgtatgtatt aatataaatt 660
agctattccc atctggaaaa gggcagccat ttctgtgttg aggtgcctca atgatactga 720
ggctgagaca gggttagatga tacaggcata ccattagcag cagactcaat actaaccacg 780
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<210> 72

<211> 1025

<212> DNA

<213> Homo sapiens

<400> 72

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agaatttttt aaatgctttt aaaaaatgga caaaattata gatattcttg agtttaaata 180
taatgtttat atattatata tactgtacat tgtagaatgg ctaaatacaa ctaattaaca 240
ttaagtacag acttttgata gatttatgaa cttggcttat tgagaatgag gttgaatgat 300
gatgttttca agttcaaatg tgtagtgagc tactaaaagc atgacttaat gtttatagct 360
ttaaaaagtt actaaagaat gacatttttg ttgatgttct tatgccaat cgcttgcttt 420
cctaactctt gtgcaatttt tctttttatt gcaggtaatt cgtagcaag aagctacacg 480
taattaaatg tgcaggatga aaagatggca caggcactgt tggtaacccc aggacctgaa 540
agcttccgccc tttttactag agaattctct gctgctatcg aaaaacgtgc tgcagaagag 600
aaagccaaga agcccaaaaa ggaacaagat aatgatgatg agaacaaacc aaagccaaat 660
agtgaactgg aagctggaaa gaaccttcca tttatttatg gagacattcc tccagagatg 720
gtgtcagagc ccctggagga cctggatccc tactatatca ataagaaagt gagtattgat 780
tttagacttc taataaatct ttaatgaaac tcttaactgt aatatacttt tctgggcctt 840
atatacagca tcacaatttt tcttctgtta aagattttat aatactcttc actgtcactt 900
atttttatca caatataata aaacaaacat ttataagaaa tgaagtcaag agttgggtac 960
agtcaggaaa tatgaataga tgaatgattt ctacaatttc acagtgataa ttcagatagt 1020
caaaa 1025
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<210> 73

<211> 433

<212> DNA

<213> Homo sapiens

<400> 73

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ctccttaaat aagcccatgt ctaatttagt aattttactc gtattttctg tttcagactt 180
ttatagtaat gaataaagga aaggcaattt cccgattcag tgccacctct gccttgata 240
ttttaactcc actaaaccct gttaggaaaa ttgctabsaa gattttggta cattcatatc 300
cttttaatgt gaattgccta aatgctattt ctaacagttg attttaaga aaatgtcagt 360
tatattttca agtatctgta aaatttcttt gagattaatg gtaacattgt tagtttaatt 420
catttatttg cat 433
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<210> 74  
<211> 450  
<212> DNA  
<213> Homo sapiens

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atttataaat ggccatggta acctactaac atttattcct taactataat ctactttatt 180  
cagcatgctt atcatgtgca ctattttgac caactgtgta tttatgacct tgagcaaccc 240  
tcctgactgg acaaagaatg tagagtaagt aggaataact tctgggaatg agaaatgcac 300  
actcaaattc tctagcaatc tccttggtgg tatagcctga cttatggttt ccacttctgt 360  
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cttctacgag gtaagtattt tcccacaaaa 450

<210> 75  
<211> 701  
<212> DNA  
<213> Homo sapiens

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caaactagat gattatccat aagatacatg aaactattat tctaaaaccc aaatagttaa 120  
accagattag attcctaaag aatataattt ctcttcagtt taactctttg ctcaggcttg 180  
taaaactaac taaatgaata gattatttgg taaatagaag taaggaacaa tattttaatg 240  
aattgaaaaa ccacaaaagg ataggatttg ctatgattga aaacatttat tttaacagtt 300  
caagcaaaat tggttaattt ggcttgatg tttttcctag gtacacattc actggaatct 360  
atacctttga gtcacttata aaaatcttgg caagagggtt ttgcttagaa gattttacgt 420  
ttcttcgtga tccatggaac tggctggatt tcagtgtcat tgtgatggcg tgagtaactt 480  
tgaaaatttg ataagcgcaa aggagtgaat atagtcatag tacaacaag gtctttgtgt 540  
catatatata atgtagagct ttcttgtag tcaagttaac tatatgggtt gtgtattttc 600  
agaatacata ttagaatata tattgcaatg taaatatatc cagtaaatga tcaataaatg 660  
gggttatctt catgtcatat agtctttctc ttcataaaaa t 701

<210> 76  
<211> 286  
<212> DNA  
<213> Homo sapiens

<400> 76  
atttgttaaa ctcacagggc tctatgtgcc aaaccagca ttaagtcctt atttagtata 60  
aactttgcc aactatcag taactctgat ttaattctgc aggtatgtaa cagaatttgt 120  
aagcctaggc aatgtttcag cccttcgaac tttcagagtc ttgagagctc tgaaaactat 180  
ttctgtaatc ccaggtaaga agaaactggg gtaaggtagt aggcccctta tatctccaac 240  
ttttcttgtg tggtattgtg tttgtgtgtg aactccccta ttacag 286

<210> 77  
<211> 515  
<212> DNA  
<213> Homo sapiens

<400> 77  
gtaagaagaa actggtgtaa ggtagtaggc cccttatatc tccaactttt cttgtgtgtt 60

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atttgtgtttg tgtgtgaact cccctattac agatatgtga cagagtttgt ggacctgggc 120
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ccaggtgaga gctagggttaa acaccgaggt tgactttaat tattgagttt gaaatcaatt 240
tatatgactt acagcattag ccttggttgc tattattaca gtccatcccg gtaaataatg 300
ccaaatgatg tttcaatgtc agtttagctc ctaaaatttt ataaattaca tgcgtattta 360
taaagtcagc ctttgagttt aacagaaaat tgcattgagac atcttcaaaa aatgctaatt 420
tgggcctctt gcgctctctc tctctctttt tcaactacat ggctttacta acagatttgg 480
attttaccat tcgctgcaga tgtagttcaa aaatg
515

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<210> 78  
 <211> 564  
 <212> DNA  
 <213> Homo sapiens

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<400> 78
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gtgtaaaaatc tgctgttcat ctatttccca aatcatcagg ctatccatac agctttgggtg 120
tctaaatagt caagcaatca tttatggggg aaagagaatg tgtgtgacta ttaagaaatc 180
atgatttctg gcactcttcc tcaggtaacc tatagttctc tctctgcagg tttaaagacc 240
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ttctgtctga gcgtgtttgc tctcattggg ctgcagctgt tcatgggcaa tctgaggaat 360
aaatgtttgc agtggccccc aagcgattct gcttttgaaa ccaacaccac ttcctacttt 420
aatggcaciaa tggattcaaa tgggacattt gttaatgtaa caatgagcac atttaactgg 480
aaggataaca ttggagatga cagtaagaag tattacatta tgtaaacctt agtgttgctg 540
aatgaatttt caactataaa tagt
564

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<210> 79  
 <211> 497  
 <212> DNA  
 <213> Homo sapiens

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<400> 79
tgagactgtg ggtgtacagc cacctttgta aataactgaa atagtccaac tctgatttat 60
tactaatact aatgtgaata ggattaatat gaaataaaat ggggtttttt ttgtattaac 120
aggtcacttt tatgttttgg atgggcaaaa agacccttta ctctgtggaa atggttcaga 180
tgcagggtaa gaaacataat atatatTTTT aagatataga actctttgcg aaaaaaaaaa 240
gtaggttaga aaacaactac atgggtatat gtgtagcctt accatgtatg caataaagag 300
cagtgtctgt cccctaggaa gtgccttgtc tgccttaccg gattgccact ggtcctaaac 360
tcacagcaat taaaaattat ccctttgtga agacctttcc ccaaaatttc acagttaaga 420
tgttcttaaa ttgatgtctc aatgtgtgaa ggcccagagt ctgtctttgc tgtacatcta 480
tcagagctgt taggaaa
497

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<210> 80  
 <211> 501  
 <212> DNA  
 <213> Homo sapiens

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<400> 80
aaagagtaaa aatatggtaa ggtcagagcc aaaagtgtgt ggttgctagc tttctgccat 60
tctaaatgtc trwaaawatt tatttgcatc taaattttct atcggctctc ctagtgaatt 120
tcatctgata agtttcacgg tgggcaatca cctaaagtgt tctggaaatt aaagcaagat 180
aattcgtcac agatagcagc tttgggtttt gaaaattcct ataagtcaaa taaattgaaa 240
ttgctgtaat ttctaaactg accctacctc catttctctc tcttatagcc agtgtccaga 300
aggatacatc tgtgtgaagg ctggtcgaaa cccaactat ggctacacaa gctttgacac 360

```

```

ctttagctgg gctttcctgt ctctatctcg actcatgact caagactact gggaaaatct 420
ttaccagttg gtaagggtcca aatgagcatg cataacattt atttttatag acatgtatga 480
aatgaaaagc ataggctgag t                                     501

```

```

<210> 81
<211> 432
<212> DNA
<213> Homo sapiens

```

```

<400> 81
agctaattag tctactgact atctaactgt ggtaatcaga tattttatttg gggacattat 60
actaaaatac tgatggaatt atccccatt tcccctagac attacgtgct gctgggaaaa 120
catacatgat attttttgtc ctggtcattt tcttgggctc atttttatttg gtgaatttga 180
tcctggctgt ggtggccatg gcctatgagg ggcagaaatca ggccaccttg gaagaagcag 240
aacaaaaaga ggccgaattt cagcagatgc tcgaacagct taaaaagcaa caggaagaag 300
ctcaggtact gagtgtataa mgcaaagatt tatcattatt attmttagtt tctaagtaga 360
aatagtgtta tactatagag ggtagattgg aactgctttt tcattttata tatmggcatt 420
gtcattagac ac                                     432

```

```

<210> 82
<211> 489
<212> DNA
<213> Homo sapiens

```

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<400> 82
tgcaaactgt tttcaaagct ctgtgttcta aatagtgcct ggctttgttt tatgacaggc 60
agttgcgcca gcatcagctg cttcaagaga tttcagtggg atagggtggg taggagagct 120
gtttgaaagt tcttcagaag catcaaagt gagttccaaa agtgctaaag aatggaggaa 180
ccgaaggaag aaaagaagac agagagagca ccttgaagga aacaacaaag gagagagaga 240
cagctttccc aaatccgaat ctgaagacag cgtcaaaaaga agcagcttcc ttttctccat 300
ggatggaaac agactgacca gtgacaaaaa attctgctcc cctcatcagg tatgattttc 360
tactaagtgc tctgttttct ttgtcattgc tattgctttt tagtttttgt attttgtttt 420
ggtacacttt tgtactatct gtacttcagt tgagggacag ggaactaaca tttaatatag 480
ttgttttaa                                     489

```

```

<210> 83
<211> 653
<212> DNA
<213> Homo sapiens

```

```

<400> 83
gtgaagacta aatgaagtgg ttgtatactt agtaaatgac aaatcagtat tgttagtcag 60
aaaaacactc tttgtactta aatttgcttt aataaaaaata tcaaaatata tgtgtcctct 120
ataaatttga ttatccatgt ttaagggcaa gagtatacta actccaaaga aaacagatcc 180
tttaatatata atatttatta aataattgag ttcttcccct acccccatcc cattcctttc 240
ctttttgctt tctctgcagt ctctcttgag tatccgtggc tccctgtttt cccaagacg 300
caatgcaaaa acaagcattt tcagtttcag aggtcgggca aaggatgttg gatctgaaaa 360
tgacttttgc gatgatgaac acagcacatt tgaagacagc gaaagcagga gagactcact 420
gtttgtgccc cacagacatg gagagcgacg caacagtaac gttagtcagg ccagtatgtc 480
atccaggatg gtgccagggc ttccagcaaa tggggaagat gcacagcact gtggattgca 540
atggtgtggt ttccttggtg ggtggacctt cagctctaac gtcacctact gggcaacttc 600
cccagagggtg ataatagatg acctagctgc tactgacatt attcaccaat ttg                                     653

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<210> 84  
 <211> 566  
 <212> DNA  
 <213> Homo sapiens

<400> 84  
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 gcaataattc aatattttat tcttgaaatt cttacctgga aaattgcatg tagcatgatt 120  
 tgcaaagaaa tgctatgtgg tgttgatatta cttattggga agagtgggtt gagccatcag 180  
 tatttggttt gcagggcacc accactgaaa cggaagtcag aaagagaagg ttaagctctt 240  
 accagatttc aatggagatg ctggaggatt cctctggaag gcaaagagcc gtgagcatag 300  
 ccagcattct gaccaacaca atggaaggta agagcaggtc atggaacagc caactttctg 360  
 tgattatgtg ctttgtgaac tattccttct tttcatagaa ttactgaagt ctgttaccga 420  
 gatcgaacta tatattagac ctaagaatgt gatatatggt gtacattatc acattgntta 480  
 caaaactaat attggcctta ttctttttga cttgggtcct taccttactt gcagagtgat 540  
 atttcaacac ttgatattat atcaat 566

<210> 85  
 <211> 748  
 <212> DNA  
 <213> Homo sapiens

<400> 85  
 tagtcatttt aaaagcaaaa tattaaattc aaagtgccta ttttctgtat tcaaaagaga 60  
 aaaaagtcga tctatatgac attttaatta acattttctg aaaatattta atgggattgt 120  
 cttctcaagt ttcttaagta atatgaactt ctattttcaa atataagcat caattttggt 180  
 aaataatgta aaatctacta gcaataataa ctcatTTTTg ttgttattta ctactcttcc 240  
 ttgttattgt cctccagaa cttgaagaat ctagacagaa atgtccgcca tgctgggtata 300  
 gattttgccaa tgtgttcttg atctgggact gctgtgatgc atgggttaaaa gtaaaacatc 360  
 ttgtgaattt aattgttatg gatccatttg ttgatcttgc catcactatt tgcattgtct 420  
 taaataccct ctttatggcc atggagcact accccatgac tgagcaattc agtagtgtgt 480  
 tgactgtagg aaacctggta agtacatttg aagtttactt atttactttg gtagatgtgg 540  
 gagagataga ccaaagggaa agatgtatgt gtgctgtgtt gaacccaaaa attatatact 600  
 ctttctcat agaaagaaat atctaaggaa tattacaggg aatctcagag atacagccta 660  
 aaactcaact ggtatgaatg ctgattgttt aggccaatgt ctgtgctgat tgatcatggt 720  
 gtcttaccag ttgtaaacgt ctcaaaat 748

<210> 86  
 <211> 664  
 <212> DNA  
 <213> Homo sapiens

<400> 86  
 ctaagacttg aattgatttg tcactattct ctacttttaa attttagata tttttattcc 60  
 tgtctaattg tcttctttat aaattcgtgt agcatcagtg ttttcagtg tcttgatagt 120  
 agtgctgatc tctaattttt taggtcttta ctgggatttt tacagcagaa atgggtctca 180  
 agatcattgc catggatcct tattactatt tccaagaagg ctggaatata tttgatggaa 240  
 ttattgtcag cctcagttta atggagcttg gtctgtcaaa tgtggaggga ttgtctgtac 300  
 tgcatcatt cagactggta tctatttata tatatccctg tcgctcattg gcacaacatt 360  
 tattttgaaa ttgaatcaat gtatatttat ataattatta attttaattt taaatttaca 420  
 tcaatatgtg acattctaag aaaacatgta aacatccyct ttaaagctaa accattttct 480  
 aagaatgatg aaagcattca aaatactcta taatgattag gtatgtaggg cacattagaa 540  
 aacctacaag tactttctaa aactgtgttt taagtttatg aagctttttt ggccttacag 600  
 tctgtaaaga tacgcaaata aaaatttaga cccagtttaa ttttagcttt ttattaacct 660  
 tact 664

<210> 87  
<211> 750  
<212> DNA  
<213> Homo sapiens

<400> 87  
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cactattttt tctggatttg aaattgaatc agttcagtat attttgagtt tttacatcta 120  
ccacgtgtgg ttctatgata ccacatacta ataaaaataat gtctaaaatt atattatgat 180  
tactactaac agcatctttt cacttgatta cagcttagag ttttcaagtt ggcaaaatcc 240  
tggcccacac taaatatgct aattaagatc attggcaatt ctgtgggggc tctaggaaac 300  
ctcaccttgg tgttgccat catcgtcttc atttttgctg tggtcggcat gcagctcttt 360  
ggtaagagct acaaagaatg tgtctgcaag atcaatgatg actgtacgct cccacgggtg 420  
cacatgaacg acttcttcca ctcttcctg attgtgttcc gcgtgctgtg tggagagtgg 480  
atagagacca tgtgggactg tatggaggtc gctggccaaa ccatgtgcct tattgttttc 540  
atgttggtca tggtcatttg aaaccttgtg gtatgtatgt agtacaaatg ctcataaatt 600  
agaacaagag cagacagtag ctaggaacgt ggccagatgt agtaaacata tctctggttt 660  
atagtaagtg gcctagactg aaatccccct attagcactc agagaataag caagttattt 720  
aacttctcct gggctctggt ttcccatatt 750

<210> 88  
<211> 768  
<212> DNA  
<213> Homo sapiens

<400> 88  
ccttagagca ggatattagg tccttttaaag agtgtgtgac ttagacatgg catctgaaat 60  
atagtaagca ttcaataaac atttgttgaa ataatttttag caaagatcta tgagttccct 120  
ttttaggctg ttatttaaag gcataattca atattaarat aggcattttt ctttttttct 180  
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ctgctactga tgatgacaat gaaatgaata atctgcagat tgcagtagga agaattgcaa 300  
agggaattga ttatgtgaaa aataagatgc gggagtgttt ccaaaaagcc ttttttagaa 360  
agccaaaagt tatagaaatc catgaaggca ataagataga cagctgcatg tccaataata 420  
ctggaattga aataagcaaa gagcttaatt atcttagaga tgggaatgga accaccagt 480  
gtgtaggtag tggaagcagt gttgaaaaat acgtaatcga tgaaaatgat tatatgtcat 540  
tcataaacia cccagcctc accgtcacag tgccaattgc tgttgagag tctgactttg 600  
aaaacttaaa tactgaagag ttcagcagtg agtcagaact agaagaaagc aaggaggtaa 660  
ggaatgcttt taaatttttt gttccatttc ctatgataac catgtactac agttattttac 720  
tattttcatt gtgcttatat gcattatcga aaagcaatga ttgtaagt 768

<210> 89  
<211> 471  
<212> DNA  
<213> Homo sapiens

<400> 89  
taattattag tacataatga tcagtaatgc taatagagtt aaatgctatc actacatttt 60  
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ttgatgttgt tctaccccga gaaggtgaac aagctgaaac tgaacccgaa gaagacctta 240  
aaccggaagc ttgttttact gaaggtaaac aagctctgat gtgattaaat acaatctccc 300  
cttgttcttt acggagactg aatatgcctc atttaaaaaa aaaaatttag caaacgaggt 360  
gtgggtggctt atgcctgtaa ccccaaaatt ttgggaggct acggtaggag gattgcttga 420

ccccaggagt ttgagaccac cctgggaaat gtagtaaggc tttgcctcta c

471

<210> 90  
<211> 623  
<212> DNA  
<213> Homo sapiens

<400> 90  
gaattctaag tagctggctg agtatataag tctgagaata attcattata caggagggat 60  
gctgacgata actaggaaat gaaggagatg gttaccctat gaaatgatta cctggaagtg 120  
gagtggggaa ggggcaagaa agtttatttt ttccatttta agattaaaat atatttttta 180  
attaactata ttttsattttt aggatgtatt aaaaagtttc cattctgtca agtaagtaca 240  
gaagaaggca aagggaagat ctggtggaat cttcgaaaaa cctgctacag tattgttgag 300  
cacaactggg ttgagacttt cattgtgttc atgatccttc tcagtagtgg tgcattggta 360  
agtgaatgc atattggcaa gaatcagatt ctggtgaaat agtttattct ccaaaattac 420  
cagatgcaaa cactgagctt cagaatcaaa agaaaaggca tatctgtgtc ttgcagagct 480  
tggcacccaa ggtttaacga tgcaaaattc agttctgaac aaatcagcac catgaaacag 540  
ccagatggaa tttctcatct ggtgtttatc taacagatgt tttcctcact gagacaacca 600  
tttcgagaga cattctgtaa cca 623

<210> 91  
<211> 520  
<212> DNA  
<213> Homo sapiens

<400> 91  
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ttattctttt gtactcacta ttatactaag caattttttt aaataatttag aagaagcaag 120  
ccatttaagt aaaataaaat atttttgatt cataggcctt tgaagatata tacattgaac 180  
agcgaaagac tatcaaaacc atgctagaat atgctgacaa agtctttacc tatatattca 240  
ttctggaaat gcttctcaaa tgggttgctt atggatttca aacatatttc actaatgcct 300  
ggtgctggct agatttcttg atcgttgatg taagtatttt aagtgatttt tataaaattg 360  
tttttaaaag aggcaagttt gacatttcat atgtttctgt tattaaaact ttactaata 420  
atgacataat tatgcagtta tttaaacaaa actgtaacat atgcaacaat gaggaatatc 480  
tcatgggaaa gagtagagga ggtcctaaac atgggcagtg 520

<210> 92  
<211> 595  
<212> DNA  
<213> Homo sapiens

<400> 92  
ctaactaata atttaagcac acatccatga aggatctggc attgaactca atcctgaatt 60  
atcagtggta tatgcacaag ttgaaaaggg gtccatggta taaaatatct aactggagat 120  
attgacacgt gttgataaat atgggcaagt attctgggtt cattggttta aaaaaagcaa 180  
tagtatgaga tgagactggc aatataagat gacccacta tgtggaagat gaaagttgcc 240  
aaggtagtgc caaattagta tttagtctgc attaaataga taccacacc tataccttca 300  
gtcaacagtt tatttcttgg tgaactaatt aatttttttt tccttttgta ggtttctttg 360  
gttagcctgg tagccaatgc tcttggttac tcagaactcg gtgccatcaa atcattacgg 420  
acattaagag ctttaagacc tctaagagcc ttatcccgtt ttgaaggcat gagggtaaga 480  
agaatagaca ctctaattat tcatgtcaaa aattacatgt aggtaatgat ttagatagaa 540  
aagggtgcc a tactcttctg atattttatt caatagaaat tacagaatta gaagc 595

<210> 93  
<211> 787  
<212> DNA  
<213> Homo sapiens

<400> 93  
ccagcataca aacatttttct gactccatct tactatacca ggttttttaat gattttctttt 60  
catactgtag catatttttgc ttctccttaaa accttagctc ttttagttgtg tcattgtttg 120  
ttttccttca aatatgtgct agaaaaatta gaagaaacaa cttgtccacc tagattttta 180  
tttaactctt ttcaagcaca tattaatact aaacaaatac attgaaggaa tggtttccat 240  
tcaaaagggtt tgtaagctat gttccctctg ctgtctcttc taggtggttg tgaatgctct 300  
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aacgggtaac atgtttgaca ttagtgatgt taacaatttg agtgactgtc aggctcttgg 480  
caagcaagct cgggtgaaaa acgtgaaagt aaactttgat aatgttggtc ctggctatct 540  
tgcactgctt caagtggtaa gtggctactg tacgagtttt gaaaaagttt tcaagatgtt 600  
tcaaggaaga ttatttccct gatgttcttc gtttgaatga ctaacatttg acagcatgaa 660  
aaaaagttta tgataacacc tataatatca gcttgaattg atcataaaaa agatgttaca 720  
attattttat aatgtatttt ccttagtggtt aagcttttag tatgttttaa tgtgatttta 780  
tatttct 787

<210> 94  
<211> 438  
<212> DNA  
<213> Homo sapiens

<400> 94  
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ctcttgatat gaaatttcac aatattgtac aaaaagttat ttgttataat actgtcagat 120  
tttcatctgg ttaaatgtca ttgttaggtg aaatttttat gaacaattca aatatatgtt 180  
atttacaggc cacattttaa ggctggatgg atattatgta tgcagctgtt gattcacgag 240  
atgtaagtat cactcaaata ttatttatag gttctagatt tcttatggtg aatattggtg 300  
gtaattttaa cactgatata tccaaaattc tatattagaa catttaatat tgcataataa 360  
aaatgaacag tctgcttcaa tatagatgat gcttgattaa tgtgtgccta atatacaata 420  
tgtagcta atgaaacg 438

<210> 95  
<211> 637  
<212> DNA  
<213> Homo sapiens

<400> 95  
gtaaggcaca atgggaaaag agaatcaaga acaatcataa aacttgcaaa ccttcattttt 60  
actagatcat actagtttta aaaaattgtt tttgtagaac aatatctcag ggtaaggcaa 120  
aagtagcact gtattaagta acagcactca ataaattact gatttagtgt aagtatttat 180  
agtatttttc atattattta atattttcaa tatcatttag gttaaacttc agcctgtata 240  
tgaagaaaat ctgtacatgt atttatactt tgtcatcttt atcatctttg gggtattctt 300  
cactctgaat ctattcattg gtgtcatcat agataaactc aaccagcaga aaaagaagat 360  
aagtattctt tagctttttc ctttcttcat tctgggggtc tgtctgttaa tacagccaaa 420  
taaccagaat acctgtggtc atgacagact taaatcatgt ttatattatt ttcagttgcc 480  
catgtgggta ttttaagctgc agggattcca gcctctagtc agtggctcct ctcaaagttt 540  
atctattgga tagctttctg acccaaaaat gtgtccactc cttcggaccc atccaacggg 600  
tctccagtgc ttttagcttg cttacagagc ctttcag 637

<210> 96  
 <211> 637  
 <212> DNA  
 <213> Homo sapiens

<400> 96  
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 tttatgtacg taaggatttt gcataatatt aagatattca gaatttcaca taaatgggaa 120  
 aagcaggata aatgtatatg taggaggata atatccactt aaaaattaga aaagattaaa 180  
 ggaaagacaa atatTTTTTg tgaaagtact attggaacac agaattgtaa ccagttttat 240  
 actatgtctt tactttggag gtcaagacat ctttatgaca gaggaacaga aaaaatatta 300  
 caatgcaatg aagaaacttg gatccaagaa acctcagaaa cccatacctc gcccagcagt 360  
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<210> 106  
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<210> 110  
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<210> 111  
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<400> 111  
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<210> 112

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<210> 113  
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<210> 118  
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<220>  
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<400> 118  
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23

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<400> 124  
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18

<210> 126

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<212> DNA

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24

<210> 127

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oligonucleotide

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<210> 134  
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<210> 143  
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<210> 144  
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<210> 157  
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oligonucleotide

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oligonucleotide

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oligonucleotide

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24

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23

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24

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23

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oligonucleotide

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25

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25

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23

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21

<210> 177

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24

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21

<210> 183

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24

<210> 184

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24

<210> 185

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23

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15

<210> 193  
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oligonucleotide

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24

<210> 194  
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oligonucleotide

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24

<210> 195  
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oligonucleotide

<400> 195  
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24

<210> 196  
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oligonucleotide

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<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                  oligonucleotide</p>	
<p>&lt;400&gt; 197          agtgcagtga actgacacaa tcac</p>	24
<p>&lt;210&gt; 198          &lt;211&gt; 23          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                  oligonucleotide</p>	
<p>&lt;400&gt; 198          cttgcgttcc tgtttggtc tct</p>	23
<p>&lt;210&gt; 199          &lt;211&gt; 22          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                  oligonucleotide</p>	
<p>&lt;400&gt; 199          tccgcttctt taccagggaa tc</p>	22
<p>&lt;210&gt; 200          &lt;211&gt; 24          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                  oligonucleotide</p>	
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 <400> 205  
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 oligonucleotide  
  
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 <400> 207  
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19

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<210> 211  
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oligonucleotide

<400> 211  
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20

<210> 212  
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oligonucleotide

<400> 212  
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20

<210> 213  
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oligonucleotide

<400> 213  
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22

<210> 214  
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oligonucleotide

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24

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oligonucleotide

<400> 215  
gccggtaaaa tagctgttga gtag

24

<210> 216  
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oligonucleotide

<400> 216  
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24

<210> 217  
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oligonucleotide

<400> 217  
gcgtgtttgc gctaataag

18

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<400> 223  
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24

<210> 224  
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oligonucleotide

<400> 224  
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24

<210> 225  
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oligonucleotide

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24

<210> 226  
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24

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<400> 227  
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<400> 228  
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<400> 229  
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<210> 230  
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<210> 231  
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oligonucleotide

<400> 236  
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oligonucleotide

<400> 237  
tttgatttgg gactgttgta aac 23

<210> 238  
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oligonucleotide

<400> 238  
aaggcaatta taaactcttt caag 24

<210> 239  
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oligonucleotide

<400> 239  
tgggagttaa attaagttgc tcaa 24

<210> 240  
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oligonucleotide

<400> 240  
acatttttatg aacactccca gtta

24

<210> 241  
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oligonucleotide

<400> 241  
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23

<210> 242  
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oligonucleotide

<400> 242  
gtgccagcgt gggagttc

18

<210> 243  
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oligonucleotide

<400> 243  
gtgggggctc taggaaacct

20

<210> 244  
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oligonucleotide

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24

<210> 245  
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oligonucleotide

<400> 245  
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<210> 246  
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oligonucleotide

<400> 246  
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<210> 247  
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oligonucleotide

<400> 247  
ggccttgctt ttgagttcc 19

<210> 248  
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oligonucleotide

<400> 248  
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<210> 249  
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oligonucleotide

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24

<210> 250

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oligonucleotide

<400> 250

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23

<210> 251

<211> 24

<212> DNA

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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

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24

<210> 252

<211> 24

<212> DNA

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<223> Description of Artificial Sequence: synthetic  
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<400> 252

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24

<210> 253

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<212> DNA

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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

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<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 254  tgaagggaaa gggaaaagat tt</p>	22
<p>&lt;210&gt; 255  &lt;211&gt; 22  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 255  tccagcctta ggcacctgat aa</p>	22
<p>&lt;210&gt; 256  &lt;211&gt; 24  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 256  ataaagcagc aaagtgcagc atac</p>	24
<p>&lt;210&gt; 257  &lt;211&gt; 24  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
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 tgacatttcc atgtacaaa gtgt 24  
  
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<210> 263  
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         oligonucleotide

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<210> 264  
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         oligonucleotide

<400> 264  
 tcaaactaaa caatttcct ctaa 24

<210> 265  
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<220>  
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         oligonucleotide

<400> 265  
 gataattaaa aactcactga tgta 24

<210> 266  
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<400> 266

ggaggctaaa ggaaagagta tg 22

<210> 267  
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oligonucleotide

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<210> 270  
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<400> 270  
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<210> 271  
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oligonucleotide

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24

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oligonucleotide

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tccttaactg aataaaagca cctc

24

<210> 273  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 273  
tggaacaccc atcaaagaag atact

25

<210> 274  
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oligonucleotide

<400> 274  
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23

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oligonucleotide

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<210> 281  
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oligonucleotide

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oligonucleotide

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<210> 283  
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oligonucleotide

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<210> 284  
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<400> 285  
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<210> 286  
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<210> 287  
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<210> 288  
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<400> 297

ttcttcatgt cattaagcaa tagg

24

<210> 298

<211> 24

<212> DNA

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<400> 298

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24

<210> 299

<211> 25

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cttcaggtgg atgtcacagt cacta

25

<210> 300

<211> 24

<212> DNA

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24

<210> 301

<211> 24

<212> DNA

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<400> 301

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24

<210> 302  
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<210> 307

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<400> 307

tacaaagaa

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<210> 309

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<212> DNA

<213> Homo sapiens

<400> 309

tacagagaa

9

<210> 310

<211> 19

<212> DNA

<213> Artificial Sequence

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19

<210> 311

<211> 23

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<210> 312  
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oligonucleotide

<400> 312  
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<210> 313  
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oligonucleotide

<400> 313  
ggtgcagata atgaaatggt ttgt 24

<210> 314  
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oligonucleotide

<400> 314  
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<210> 315  
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oligonucleotide

<400> 315  
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<210> 316  
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<400> 320  
 agaagcccaa aaaggaacaa gata 24

<210> 321  
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<400> 321  
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<210> 322  
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<400> 322  
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<210> 323  
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           oligonucleotide

<400> 323  
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<210> 324  
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           oligonucleotide

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<p>&lt;210&gt; 325  &lt;211&gt; 23  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 325  caggctatac ccacaaggag att</p>	23
<p>&lt;210&gt; 326  &lt;211&gt; 22  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 326  tgттаatttt ggcttg gatg tt</p>	22
<p>&lt;210&gt; 327  &lt;211&gt; 21  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 327  tcactccttt gcgcttatca a</p>	21
<p>&lt;210&gt; 328  &lt;211&gt; 20  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
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oligonucleotide

<400> 329  
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23

<210> 330  
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oligonucleotide

<400> 330  
tgtaatcca ggtaagaaga aac

23

<210> 331  
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oligonucleotide

<400> 331  
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24

<210> 332  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 332  
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24

<210> 333  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 333  
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<210> 334  
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oligonucleotide

<400> 334  
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<210> 335  
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oligonucleotide

<400> 335  
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<210> 336  
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oligonucleotide

<400> 336  
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<210> 337  
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oligonucleotide

<400> 337  
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<210> 338  
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oligonucleotide

<400> 338  
aaactgaccc tacctccatt tctc

24

<210> 339  
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oligonucleotide

<400> 339  
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24

<210> 340  
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oligonucleotide

<400> 340  
cagatattta tttggggaca ttat

24

<210> 341  
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oligonucleotide

<400> 341  
aaatctttgc ktttatcact cagt

24

<210> 342  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 342

tagtgcctgg ctttgtttta tgac

24

<210> 343

<211> 22

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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 343

cggatttggg aaagctgtct ct

22

<210> 344

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 344

agagcacctt gaaggaaaca acaa

24

<210> 345

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 345

tccctcaact gagtacaga tagt

24

<210> 346

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

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<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 347  aagccctggc accatcctg</p>	19
<p>&lt;210&gt; 348  &lt;211&gt; 20  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 348  tttgcaaaga aatgctatgt</p>	20
<p>&lt;210&gt; 349  &lt;211&gt; 22  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
<p>&lt;400&gt; 349  ctgggtaaca gacttcagta at</p>	22
<p>&lt;210&gt; 350  &lt;211&gt; 24  &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;  &lt;223&gt; Description of Artificial Sequence: synthetic  oligonucleotide</p>	
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         oligonucleotide  
  
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 cttgatctgg gactgctgtg atg 23  
  
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 <400> 353  
 aggatataat ttttggttca aca 23  
  
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         oligonucleotide  
  
 <400> 354  
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         oligonucleotide  
  
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 gtgccaatga gcgacagg 18

<210> 356  
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         oligonucleotide  
  
 <400> 356  
 ccacgtgtgg ttctatgata cc 22

<210> 357  
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         oligonucleotide  
  
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<210> 358  
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<210> 359  
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<210> 360

<211> 24

<212> DNA

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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 360

gagttccctt tttaggctgt tatt 24

<210> 361

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 361

tcttattgcc ttcattgatt tcta 24

<210> 362

<211> 22

<212> DNA

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<220>

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oligonucleotide

<400> 362

tgaaaaataa gatgcgggag tg 22

<210> 363

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<220>

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oligonucleotide

<400> 363

gtgaggctgg gggtgtttat g 21

<210> 364

<211> 21

<212> DNA  
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<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 364  
gagatgggaa tggaaccacc a

21

<210> 365  
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<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 365  
ttcgataatg catataagca caa

23

<210> 366  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 366  
aaggggggaaa atcacatctt t

21

<210> 367  
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<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 367  
ttaaatgagg catattcagt ctcc

24

<210> 368  
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<220>

<223> Description of Artificial Sequence: synthetic

oligonucleotide

<400> 368  
ggaagtggag tggggaagg 19

<210> 369  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 369  
attcttgcca atatgcattt cact 24

<210> 370  
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oligonucleotide

<400> 370  
ttcttttgta ctactatta tactaa 26

<210> 371  
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<220>  
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oligonucleotide

<400> 371  
aaacttgcct cttttaaaaa caat 24

<210> 372  
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<212> DNA  
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<220>  
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oligonucleotide

<400> 372  
taccacaccc tataccttca gtca 24

<210> 373  
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oligonucleotide

<400> 373  
gagtatggca cccttttcta tcta 24

<210> 374  
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<400> 374  
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<210> 375  
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oligonucleotide

<400> 375  
tgcttgccaa gagcctgac 19

<210> 376  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 376  
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<210> 377  
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<212> DNA  
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<220>  
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<400> 377  
 caaacgaaga acatcaggga aata 24

<210> 378  
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<220>  
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<400> 378  
 ttcacaatat tgtacaaaaa gtta 24

<210> 379  
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<220>  
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<400> 379  
 attaccacca atattcacca taag 24

<210> 380  
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<220>  
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<400> 380  
 tcagggtag gcaaaagtag cac 23

<210> 381  
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<220>  
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 oligonucleotide

<p>&lt;400&gt; 381 gaaccccaga atgaagaaag gtaa</p>	24
<p>&lt;210&gt; 382          &lt;211&gt; 24          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                    oligonucleotide</p>	
<p>&lt;400&gt; 382 tttgtgaaag tactattgga acac</p>	24
<p>&lt;210&gt; 383          &lt;211&gt; 19          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                    oligonucleotide</p>	
<p>&lt;400&gt; 383 acgcatggct ttggaacat</p>	19
<p>&lt;210&gt; 384          &lt;211&gt; 22          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                    oligonucleotide</p>	
<p>&lt;400&gt; 384 cccgtatgtg gaagggcttt at</p>	22
<p>&lt;210&gt; 385          &lt;211&gt; 24          &lt;212&gt; DNA          &lt;213&gt; Artificial Sequence</p>	
<p>&lt;220&gt;          &lt;223&gt; Description of Artificial Sequence: synthetic                    oligonucleotide</p>	
<p>&lt;400&gt; 385 ctaggttgat ccgggacaaa acta</p>	24
<p>&lt;210&gt; 386</p>	

<211> 22  
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oligonucleotide

<400> 386  
aacggatgac cagggcaaat ac

22

<210> 387  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 387  
ctagaaggtc ctggggcaac tg

22

<210> 388  
<211> 23  
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<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 388  
aagccatcat gtaaagtgaa aag

23

<210> 389  
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<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 389  
atcccaaaga tggcatagat a

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<210> 390  
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<220>

<223> Description of Artificial Sequence: synthetic  
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<400> 390  
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<210> 391  
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<220>  
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<400> 391  
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<210> 392  
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<220>  
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<400> 392  
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<210> 393  
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<400> 393  
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<210> 394  
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<220>  
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<400> 394  
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<210> 395  
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oligonucleotide

<400> 395  
tggaggggtt tgatgccata 20

<210> 396  
<211> 23  
<212> DNA  
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oligonucleotide

<400> 396  
gatggatgcc cttcgaatac aga 23

<210> 397  
<211> 24  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 397  
ttcccattha gtttgtcaat aatc 24

<210> 398  
<211> 23  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 398  
aaggggagga ttgacttacc tat 23

<210> 399  
<211> 21  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic  
oligonucleotide

<400> 399

ttggcatgga cctcctcttg a

21

<210> 400

<211> 18

<212> DNA

<213> Homo sapiens

<400> 400

caagataatg atgatgag

18

<210> 401

<211> 15

<212> DNA

<213> Homo sapiens

<400> 401

caagatgatg atgag

15

<210> 402

<211> 13

<212> DNA

<213> Homo sapiens

<400> 402

tggtgtaagg tag

13

<210> 403

<211> 13

<212> DNA

<213> Homo sapiens

<400> 403

tggtataagg tag

13

<210> 404

<211> 17

<212> DNA

<213> Homo sapiens

<400> 404

ccccttatat ctccaac

17

<210> 405

<211> 17

<212> DNA  
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<400> 405  
ccccttatay ctccaac 17

<210> 406  
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<400> 406  
aaatacgtaa tcgat 15

<210> 407  
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<400> 407  
aaatacataa tcgat 15

<210> 408  
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<400> 408  
aaatacrtaa tcgat 15